# ABSTRACT

Suzanne Averitt, RAISING STUDENT ACHIEVEMENT USING A MULTI-TIERED SYSTEM OF SUPPORTS: A PROBLEM-BASED ORGANIZATIONAL STUDY (Under the direction of Dr. R. Martin Reardon), Department of Educational Leadership, March 2017.

Three elementary schools were chosen for this study based on discrepancies in state summative assessment composite scores between schools in similar geographic regions and with similar rates of students receiving free or reduced lunch. As an evidence-based approach to school improvement, this study proposed to implement a multi-tiered system of supports in the context of professional learning communities (PLCs) to close the performance gap between the target schools and analogous schools with which they were paired. A gradual release coaching model was used to assist teachers with the implementation of MTSS during grade level PLCs. At those meetings, a problem-solving method was introduced and teachers learned to analyze data to identify academic weaknesses, brainstorm instructional solutions, and develop action plans to remediate the area of concern. At the conclusion of the study, the results were mixed. Academic performance increased considerably at one school but fell at the other two schools. In addition, after a year of working in PLCs, teachers at the target schools continued to doubt that working collegially had any effect on their students' performance. These findings led to an exploration of Implementation Science to gain a better understanding of the results.

# RAISING STUDENT ACHIEVEMENT USING A MULTI-TIERED SYSTEM OF SUPPORTS: A PROBLEM-BASED ORGANIZATIONAL IMPROVEMENT STUDY

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by

Suzanne Averitt

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# RAISING STUDENT ACHIEVEMENT USING A MULTI-TIERED SYSTEM OF SUPPORTS: A PROBLEM-BASED ORGANIZATIONAL IMPROVEMENT STUDY

by

Suzanne Averitt

APPROVED BY:

DIRECTOR OF DISSERTATION:_____
R. Martin Reardon, PhD

COMMITTEE MEMBER:_____
Matthew Militello, PhD

COMMITTEE MEMBER:_____
David Siegel, PhD

COMMITTEE MEMBER:_____
Cheryl Wilson, EdD

CHAIR OF THE DEPARTMENT OF EDUCATIONAL LEADERSHIP:

_____
William Rouse, Jr., EdD

DEAN OF THE GRADUATE SCHOOL:

_____
Paul Gemperline, PhD

## DEDICATION

I dedicate my dissertation work to my family who has nudged and encouraged me throughout this journey. To my children, Emily Jackson and Ben Averitt, thank you for always (well, almost always) believing I was the smartest person you know. You both have inspired me in innumerable ways. To my granddaughter, Kendall Breckenridge who prematurely dubbed me, "Dr. Bubbe"- I could never have let you down. And finally, to my partner, Jeff Henderson who put up with many weekends without my company as I read, wrote, rewrote, and rewrote this dissertation.

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I'd especially like to thank Dr. Martin Reardon, my committee chair, who patiently suffered my frustration-filled emails and phone calls and guided me through this process with gentle pushes and a masterful mixture of kind words and constructive criticism.

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## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF FIGURES

# CHAPTER 1: INTRODUCTION

## Problem of Practice

Several elementary schools in a medium-sized district with a combination of rural, suburban and urban schools (referred to subsequently by its fictitious shortened form: Medium District) have continuously struggled to raise student achievement, while other Medium District schools have been able to maintain much higher levels of proficiency. The lowest performing schools have implemented many changes and adopted a variety of programs in an effort to raise student achievement, but have been unable to attain sustained growth in student performance on state End-of-Grade (EOG) tests. Some of the improvement endeavors have included re-assignment of school administrators, tutoring from outside agencies, adoption of the school by community organizations, and making available additional funding to (a) lower class sizes, and (b) purchase research-based programs to remediate students' skills in reading and math. Additionally, Medium District has placed instructional coaches in these schools to assist teachers in their planning for and implementation of appropriate instruction for students. The instructional coaches also have worked closely with the low-achieving schools' administrative teams, and have acted as in-house professional development coordinators to tailor such professional development to the needs of each particular school's faculty.

In my former position as a Medium District literacy coach, I was a participant in monthly coaches' meetings during which several instructional coaches noted that teachers in their assigned schools often did not demonstrate a firm understanding of the Common Core standards, and so struggled with scaffolding instruction aimed at raising the rigor of their lessons enough to lead students to be successful on the EOG's. Additionally, many of the teachers and administrators in the schools in which the instructional coaches worked grappled with limited

success with classroom management issues that made it difficult to implement their lesson plans. Based on their observations, the instructional coaches refined their role and began to support the teachers with professional development geared to increase the teachers' understanding of the Common Core standards and modeled the development of relevant and thoughtful lesson plans. In addition, many instructional coaches helped gather instructional materials for the teachers, and some used a co-teaching model in an effort to illustrate effective teaching strategies. Despite the variety of strategies implemented, EOG scores showed no consistent gains across the schools in which the instructional coaches worked.

## Supporting Data

The problem of practice as outlined so far is starkly supported by the EOG data from the past two years. As the 2013-2014 data in Figure 1 illustrate, there is a wide discrepancy in student achievement among the fifteen elementary schools in Medium District. Notably, there is a trend for schools with higher levels of poverty (as measured by free and reduced lunch status—a well-documented correlate of student academic achievement) to demonstrate lower levels of proficiency on the state's EOG summative assessment. Additionally, the trend indicates that schools located in suburban areas (labeled S1-S8) had higher levels of student achievement than either the schools in rural areas (labeled R1-R4) or urban areas (labeled U1-U3).

Further analysis of the data revealed that each of three schools (one suburban [S3], one rural [R2] and one urban [U1]) could be notionally paired with a school at a comparable socioeconomic status situated in a similar residential regional context within Medium District but with a notably higher EOG student achievement outcome (S8, R4, and U3 respectively).

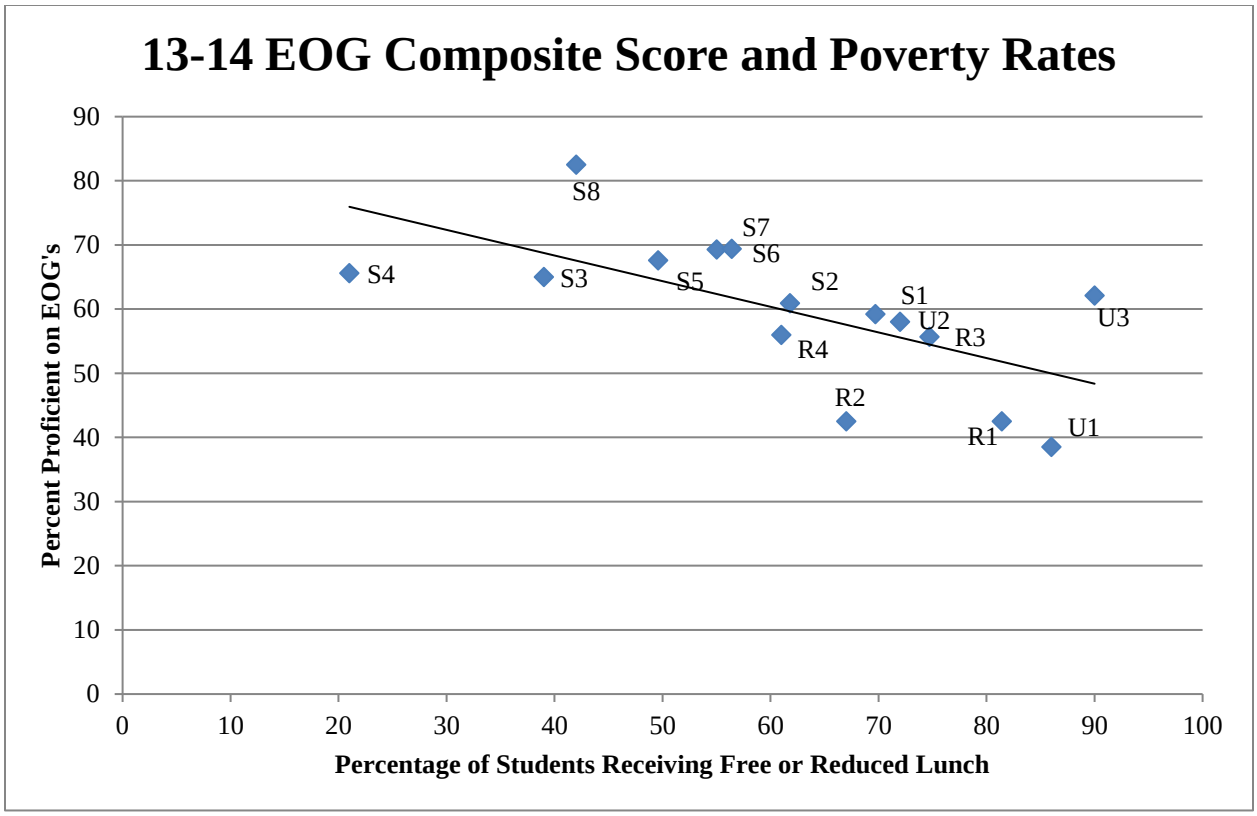



*Figure 1.* The average percent proficient on 2013-2014 EOG composite scores in Medium District in Urban (U), Rural (R) and Suburban (S) schools.

These notional pairings are indicated by ellipses drawn around them in Figure 2. The intentional pairing of these six schools highlights disparities that may be remediable if the intervention that my study proposes is implemented. For example, the S8-S3 gap is 17.5%, the R4-R2 gap is 13.5%, and the U3-U1 gap is 23.6%.

As intimated by the notional pairing process, in the absence of mediating factors, it would be expected that schools that serve students experiencing comparable levels of poverty (as defined by the percentage of students receiving federal assistance through the free and reduced-price lunch program) within comparable contexts in the same district would exhibit comparable student achievement. However, as Figure 3 indicates, the discrepancy noted in 2013-2014 (Figure 2) was present again in 2014-2015, with the S8-S3 gap measuring 9.7 %, the R4-R2 gap 20.1%, and the U3-U1 gap 7.9%.

Clearly, the magnitude of gaps between pairs in the 2014-2015 EOG data changed from the gaps illustrated in Figure 2, but the differences are still glaring. For example, in the S8-S3 pairing, S8's composite score fell by 4.4 percentage points, and S3's score rose by 3.3 percentage points. While the S8-S3 gap remains noteworthy, these changes resulted in a narrowing of the gap to 9.7 percentage points. Correspondingly, the difference in achievement between U3 and U1 narrowed to 7.9 percentage point difference due to U3's scores falling by 10.9 percentage points, and U1's scores rising by 4.8 percentage points. Finally, the gap between the rural school pairing grew, with R4's scores growing by 7.5 percentage points while R2's scores increased by only 0.9 percentage points. This resulted in a 20.1 percentage point difference across the R1-R3 pairing.

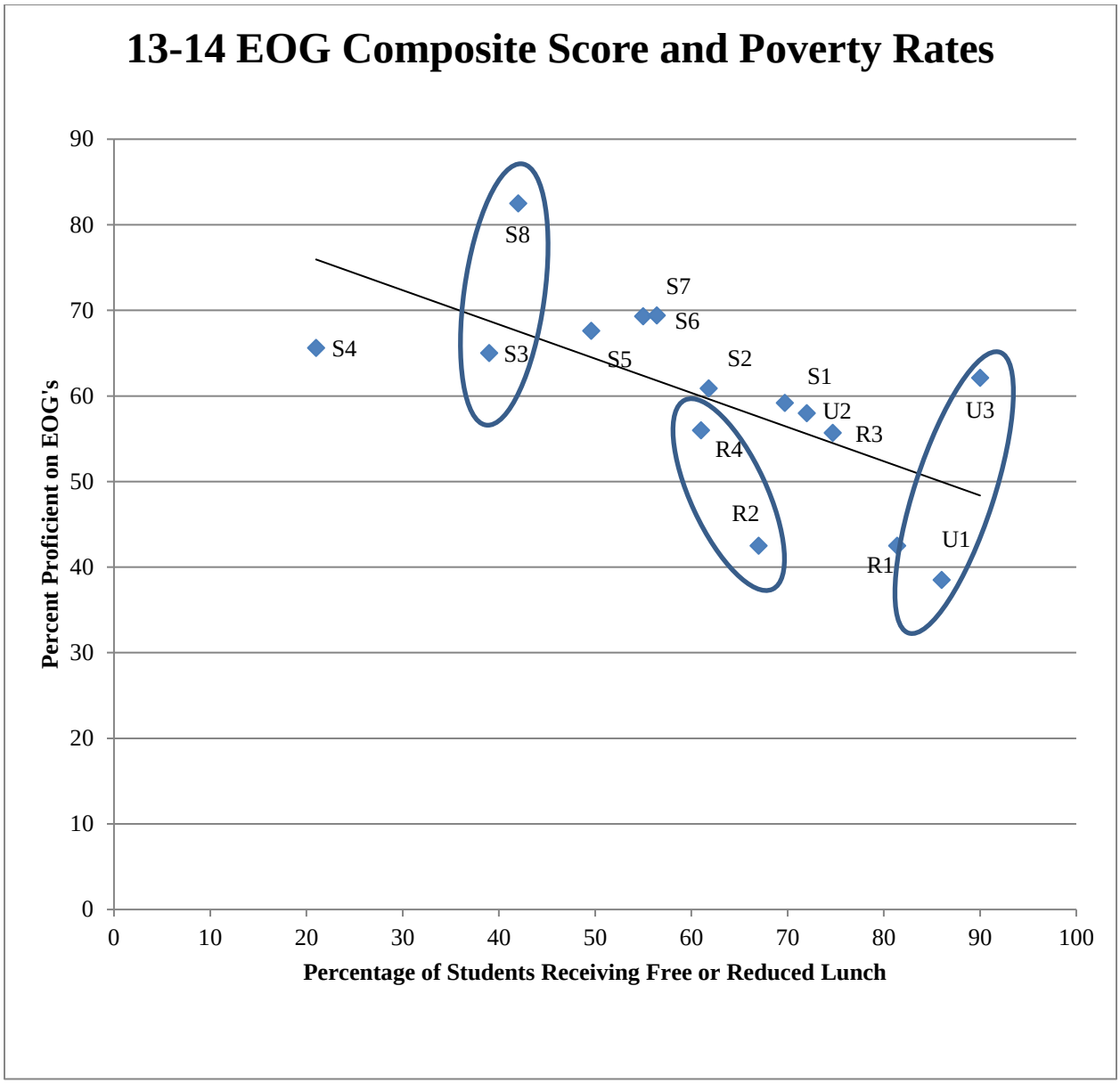



*Figure 2.* The average percent proficient on 2013-2014 EOG composite scores in Medium District with indications of notional pairings.

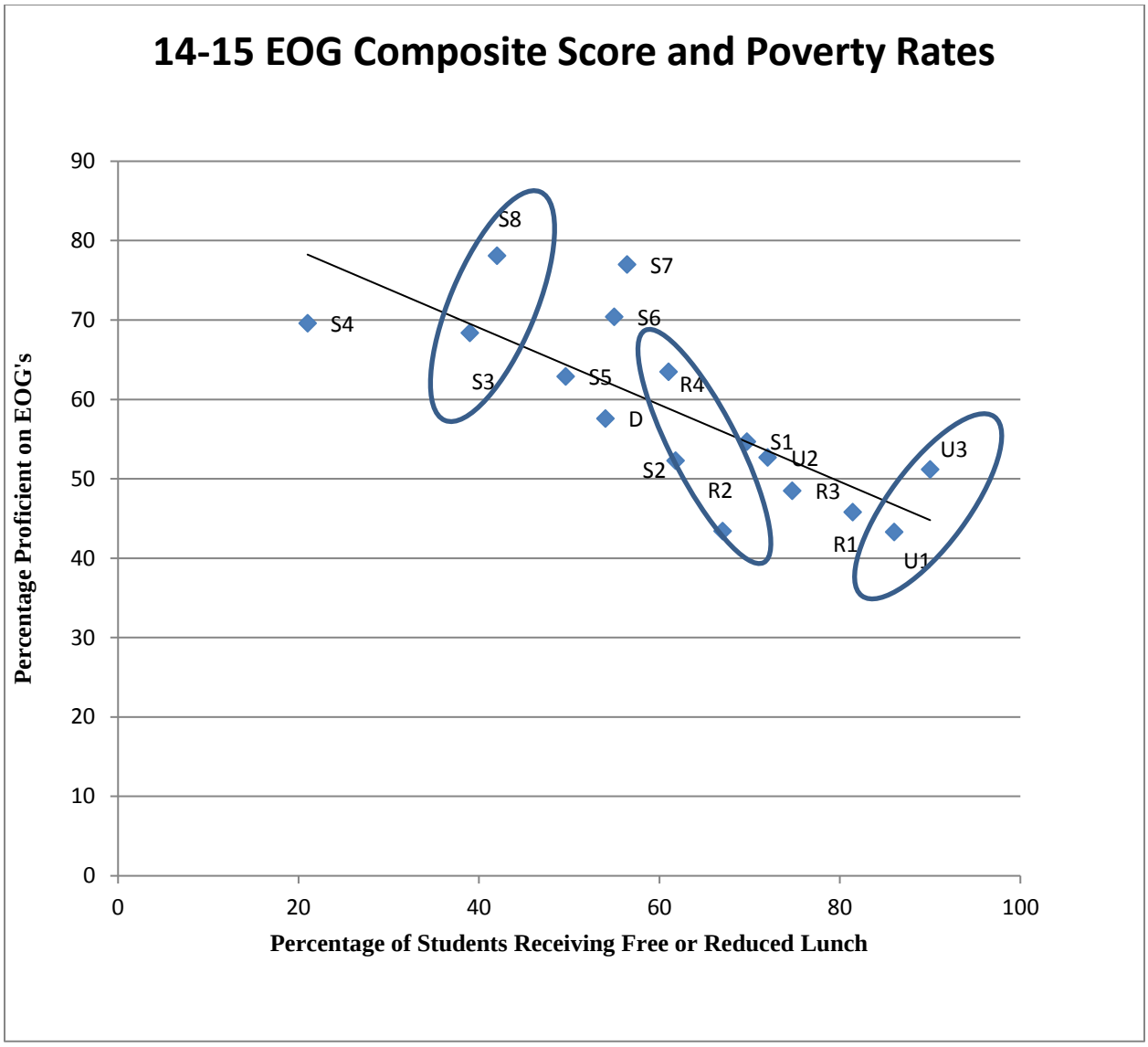



*Figure 3*. The average percent proficient on 2014-2015 EOG composite scores in Middle District indicating the most current gaps between school pairings.

## Inherent Discrepancies

As with much real-world data, the discrepancies I wish to address are not clear cut. This is illustrated in Table 1, which presents an overview of the problem of practice that my study proposes to address, and includes demographic data in order to better define the schools. In the urban school pairings, a notable demographic difference (by 20%) is the much higher Asian population in U3 (in this case, mostly Burmese and Montagnard refugees), while U1 has a black student population that is 13% higher than U3's. Further, three-quarters of the students at R4 are white, but at R2, the population is more evenly divided between white (38%) and black (41%) students. Not all pairings are compounded by discrepancies. Within the suburban school pairings, the student demographics are very similar, with S8 having slightly more Hispanic and multi-racial students, and S3 serving 12% more white students. In fact, the discrepancies in racial composition of student populations in the school pairings may indeed be a factor in the achievement gap between the schools. Swain (2006) noted that "there is a well-documented black/white achievement gap in educational performance that affects every economic level. Black children reared in families earning $50,000 a year score no better than whites and Asians reared in families earning $10,000 to $20,000 per year" (p. 47). Despite the discrepancies in the data that attest to the contours of this problem of practice, my study is well-positioned to make a noteworthy impact on the inequalities among my selected school pairings. I contend that interventions put into place throughout the implementation of this study may ameliorate instructional practices that traditionally led to achievement gaps among racial subgroups.

As discussed, the demographic differences between schools in their respective pairings may account for some of the achievement gaps I have noted. My perspective is that such demographically associated discrepancies are no cause for complacency. In fact, I believe that

Table 1

*Achievement Gaps and Demographic Makeup of Selected School Pairings*

| Pairing | Residential Region | School | Percent of Students In Poverty | 2013-2014 Gap | 2014-2015 Gap | Demographic Percentage by Race | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Am Ind. | Asian | Hisp | B | W | Multi |
| 1 | Urban | U3 | 90% | 23.6 | 7.9 | 1% | 23% | 10% | 43% | 20% | 3% |
| | | U1 | 86% | | | 0 | 3% | 12% | 56% | 22% | 7% |
| 2 | Rural | R4 | 61% | 13.5 | 20.1 | 0 | 0 | 9% | 11% | 75% | 5% |
| | | R2 | 67% | | | 0 | 0 | 10% | 41% | 38% | 11% |
| 3 | Suburban | S8 | 42% | 17.5 | 9.7 | 0 | 3% | 12% | 13% | 61% | 11% |
| | | S3 | 39% | | | 0 | 1% | 9% | 13% | 73% | 4% |

for far too long educators have been quick to exonerate themselves from making an effort on the basis that some factor is "beyond the school's control." My action research approach is predicated on my belief not only that "all students can learn," but that, given the appropriate conditions, they can learn to comparable degrees (Clay, 1987; Jones, Yssel, & Grant 2012). As an example of quick exoneration, while these differences have been noted at the school and district level, little professional development on the effects of those differences on student learning has taken place. As PLCs begin to develop instructional plans for their core instruction, they may need to gain a deeper understanding of the needs of their students. Howard and Navarro (2016) suggest that teachers need to "engage in meaningful professional development that involves reflection, theory, dialogue and developing plans of action" (p.266) in an effort to close racial achievement gaps.

## Purpose of Study

The purpose of this study is to close the achievement gap between three notional pairs of schools in comparable environmental contexts within Medium District. Taking into account that the notionally paired schools have previously tried a variety of strategies to close the achievement gap, my study will utilize a nuanced but potentially effective approach to the problem that employs two well credentialed existing innovations. The focus of the interventions will be on using data to inform instructional practices because, as Allington and Walmsley (2007) assert, "we must create schools that provide children who need more and better instruction with that instruction" (p. 11). I believe substantial progress can be achieved in lessening the achievement gap between the notional pairs of schools by assisting the teachers in the lower-achieving school of each pair to provide more and better instruction through the use of

a Multi-Tiered System of Supports (MTSS) framework implemented in the context of vibrant professional learning communities (PLCs) (DuFour, Eaker, & DuFour, 2005).

The MTSS framework, and its earlier iteration as Response to Intervention (RtI), is aimed at closing achievement gaps by first eliminating instructional gaps (Clay, 1987; Fuchs & Fuchs, 2006; Jones, Yssel, & Grant, 2012; Vellutino & Scanlon, 1996). North Carolina, the state in which Medium District is situated, has adopted MTSS as the framework that will be deployed for the dual purposes of school improvement and identification of students with specific learning disabilities (SLD). My role in the district is to lead schools through the implementation of the framework. MTSS is comprised of three tiers, or levels of instructional intensity, aimed at meeting the educational needs of all students. At the beginning of the school year, students are screened with a nationally normed universal assessment. The data from this assessment are used to inform the development of each grade level's core, or Tier 1, instructional plan by identifying academic areas which have not yet been mastered by at least 80% of the students. The Tier 1 plan includes whole group instruction as well as differentiation which may be delivered in small group or one-on-one environments. Teachers then monitor students' progress toward the goals to determine the efficacy of the teaching strategies that were employed. If the analysis of the data shows that at least 80% of the students are on target, teachers, in a PLC, may decide to continue the strategies or begin to focus on a new area of concern through a problem solving process.

The work of MTSS will occur in the context of PLCs in an effort to negate criticism regarding the efficacy of the practice. Early proponents of the use of a MTSS framework to improve student outcomes warned of several pitfalls in the approach, including teacher capacity for interpreting data, fidelity of implementation of interventions, and appropriate data collection (Ball & Christ, 2012; Fuchs & Fuchs, 2006; Fuchs, Fuchs, & Speece, 2002; Shinn, 2007). I

believe a solution to these concerns is leveraging the power of collaboration through the PLC. When working as a team to problem-solve gaps in core instruction and individual student concerns, the diverse skills of the team members will enhance the process.

**Blending MTSS and PLC**

Supporting their selection as the focus of the intervention in this study, the goals of MTSS and PLCs dovetail: use student data to drive a decision-making process that leads to meeting the instructional needs of all students. Throughout this study, grade level teachers will meet as PLCs to analyze student data in order to (a) identify students who are at risk for reading failure, and (b) design instructional supports to address the needs of those students. Collaboration among teachers in the context of PLCs has been shown over many years to result in changes in teachers' pedagogical approaches as teachers work together to find solutions to instructional concerns. DuFour (2011) envisaged the dynamics of PLC improvement cycle as follows:

> As members look at evidence of student proficiency in the knowledge and skills the team has deemed essential, on an assessment the team has agreed is valid, they are able to learn from one another and continually enhance their ability to meet the needs of their students. (p. 61)

The effective implementation of PLCs has been associated with heightened levels of teacher efficacy (DuFour, 2011; DuFour et al., 2005; Hord, 2008), and change in teacher comfort level with using data to make instructional decisions about their students. Both of these variables will be assessed in this study. In addition, change in teachers' views about their ability to impact student learning through the use of MTSS will be studied to determine whether using the MTSS framework in the context of the PLC meetings changes teachers' perceptions about student learning.

Table 2 is a logic model showing the process that I propose using to implement the MTSS framework, and illustrates the use of PLCs as an integral part of the design. The core

Table 2

*Logic Model of Plan to Raise Student Achievement*

| Planned Implementation of Action Research | | | Intended Results | |
|---|---|---|---|---|
| Resources | Activities | Outputs | Outcomes | Impact |
| DPI Consultants and District MTSS Coordinator | Overview of MTSS framework for school and district administrators | School and district administration understanding the MTSS framework | Administrators believe in using the MTSS process to raise student achievement. | Increased administrative support |
| School psychologists and District MTSS coordinator | Overview of MTSS for all school staff members | School personnel understanding the MTSS framework | Teachers believe in using the MTSS process to raise student achievement | Increased support and efficacy in implementation of MTSS framework |
| Core analysis form and District MTSS coordinator | Analysis of instructional practices in reading | Heightened understanding of instructional components missing from core instruction | All students receive comprehensive core instruction | Increased student achievement |
| Data (formative, benchmark, summary, qualitative) | Data analysis of multiple data sources | Charts and graphs of comparison data | Data is used effectively to change instructional practices | Understanding current level of student achievement |
| Grade level teachers, school administrators, District MTSS coordinator | Development of grade level action plans | Grade level action plans with actionable steps and defined goals | Grade levels have common and targeted instructional focus | Focused instruction to remediate gaps in student learning |

Table 2 (continued)

| Planned Implementation of Action Research | | | Intended Results | |
|---|---|---|---|---|
| Resources | Activities | Outputs | Outcomes | Impact |
| Progress monitoring data, grade level PLCs, school administrators and district MTSS coordinator | Review of action plan and discussion about individual students | Completed review section with next steps for instruction and updated goals | Revised action plans to meet the needs of students | The ability to monitor and quickly adjust instruction according to student needs |
| Benchmark and EOG data, grade level PLCs, school administrators and District MTSS coordinator | Analysis of the end of year data | Charts and graphs to show comparisons of current and prior years' results | Analysis of the effect of implementing MTSS | Information with which to determine effectiveness of the process and plan next steps |

analysis, data analysis, development of action plans, and review of progress monitoring data are meant to be completed cyclically as a means of improving academic achievement of all students.

The fact that the student achievement gap has resisted the efforts to eradicate it for the past two years is a cause for concern for what is essentially a short-term action research project. However, the further fact that the magnitude of the gap has varied a little over the past two years holds out hope for the effectiveness of an intervention, which, in my proposed study, will take the form of an action research intervention. In other words, the problem of practice is not so intractable that it appears to be inextricably embedded in systemic processes and, hence, could prove impervious to my short-term, teacher-led intervention.

**Action Research as a Change Mechanism**

Stringer (2014) describes action research as a process that is an inherent outgrowth of the daily work of service professionals whose job it is to continually recognize problems and ask questions that lead to solutions. Action research serves as a vehicle to formalize problem-solving within the context of a defined, cyclical approach that allows "people to engage in systematic inquiry and investigation to design an appropriate way of accomplishing a desired goal and to evaluate its effectiveness" (Stringer, 2014, p. 6). The collaborative nature of action research requires an inclusive team approach that encourages the consideration of diverse opinions and ideas in a consensus building and non-confrontational atmosphere. Action research is conducted in improvement cycles that are structured but flexible and focus on continuous improvement. In general, the first phase includes data collection and the development of a problem statement. Next, teams analyze the data to determine possible causes of the problem and, based on the decisions made at this stage, develop a plan to remediate the issue. The plan is then implemented and new data are collected to evaluate the effectiveness of the plan and its implementation. These

cycles may be repeated multiple times, depending on the conclusions drawn and decisions made by the team.

In this research study, I will participate actively in the PLCs in order to model the process of analyzing data to make instructional decisions. After one round of facilitating the PLC, I will attend the PLC in a coaching position for the next couple of cycles of the action research, and will scaffold the dynamics of the PLCs to facilitate their eventual functioning. During the coaching phase, I will be available if teachers have questions about data or the problem solving process.

In summary, the goal for the grade level PLCs is to individually develop their own action plans for improved student achievement based on the results of their data analysis in conjunction with an analysis of their core instructional practices. Action plans will reflect the stakeholders' beliefs about student learning and will include a plan for professional development that is appropriate to the specific needs of the school. Plans will be created at each grade level, to address unique needs and requirements of the grades, as well as at the school level, to address school wide issues and concerns.

**Policy Context**

The No Child Left Behind Act (NCLB, 2001) mandated that schools must find ways to close achievement gaps between specific subgroups and set the expectation that students must be reading at grade level by the end of third grade. In order for schools to achieve that goal, the legislation went on further to require the implementation of research based programs and interventions to aid in student achievement. In response to NCLB and other federal laws, researchers such as Fuchs and Fuchs (2006) introduced a new process for identifying and teaching struggling students. This general education initiative was called Response to

Intervention (RtI). More recently, RtI has become known to many as Multi-tiered System of Supports (MTSS). While the intent of RtI is specifically to identify at-risk students early and remediate their academic weaknesses through a three-tiered approach to instruction, MTSS combines the academic emphasis of RtI with the behavioral component of Positive Behavior Interventions and Supports (PBIS) to allow for a more comprehensive approach.

Although the United States legislature recently passed the Every Student Succeeds Act (ESSA; Executive Office of the President, 2015) to replace NCLB, the expectations for early intervention and identification of students at risk of academic failure remain virtually the same. For example, in an executive summary of ESSA (2015) published by the Executive Office of the President, the authors first recognize that efforts related to NCLB such as "focusing on improving student outcomes, especially for those who are furthest behind" (ESSA, 2015, p. 6) have positively affected student achievement. They then go on to highlight language in ESSA that requires schools to "design and implement interventions where students are struggling" (ESSA, 2015, p. 8).

## CHAPTER 2: IMPROVEMENT GOALS

Currently, there is a significant achievement gap between elementary schools in three pairings of schools in similar contexts. There are three improvement goals for this study.

Goal 1: Close the student achievement gap between the schools in the selected pairings as indicated by *mCLASS*: Reading 3D assessments.

Rationale: As schools move to PLCs focused on using data-driven decision-making to change instructional practices, students will develop the skills necessary to become accomplished readers. Once students are proficient in the skills required to read grade level text, PLCs will focus on instruction that supports comprehension of material read independently.

Measurement: Elementary schools assess students using *mCLASS*: Reading 3D (*mCLASS*) three times a year as a universal screener. The screener assesses foundational reading skills as well as reading comprehension skills and is used to identify students at risk of reading failure. Data from the *mCLASS* assessments are included in PLC conversations and analysis of the data is used to make instructional decisions for grade level planning as well as individual instructional planning for students identified as "at-risk". These data will also be used to determine effectiveness of the implementation of an MTSS framework.

Goal 2: Participating teachers will attain a higher level of comfort with using data analysis to adjust instruction for their entire class—as well as for individual students—through scaffolded support and multiple opportunities to practice.

Rationale: When PLCs begin, I will facilitate the use of Team-Initiated Problem Solving (TIPS; Newton, Horner, Todd, Algozzine, & Algozzine [2012]) approach to analyzing

data from a variety of sources. The structure of the TIPS process is cyclical and enhances teachers' ability to accurately and effectively (a) determine area(s) of concern, (b) brainstorm appropriate instructional practices to address the area(s) of concern, and (c) come to consensus on the instruction that would have the most impact in addressing the concern. After the first round of problem-solving, I will attend future meetings to act as a consultant when questions about the process arise. Once teachers are comfortable with the TIPS process, they will continue independently.

Measurement: This goal will be measured using anecdotal notes that address the level to which the problem-solving template is effectively used during the coaching cycle of this study. Completed templates will be analyzed to determine the frequency with which short term and long term goals were met. Additionally, evidence gathered from focus group conversations will be collected and analyzed to measure teachers' comfort level with using data to inform their instruction.

Goal 3: Participating teachers will espouse an increased belief in the value of working in PLCs as a venue for professional growth through heightened interdependence among their PLC colleagues, particularly with respect to the educational problem solving process.

Rationale: A significant result of the consistent and authentic use of PLCs is a sense of interdependency and trust among teachers (DuFour et al. 2005; Hord, 2008). Therefore, I expect that, when implemented with fidelity, teachers and students alike will reap the benefits of collegial conversations about student learning.

Measurement: Surveys regarding teachers' attitudes about the efficacy of working in PLCs will be administered at the beginning of the research project and again at the

culmination of the project. The surveys will be designed using a Likert scale and data will be analyzed to determine the degree of attitudinal change. Questions concerning the value teachers place on collaborating with peers during PLC meetings will also be asked during focus group sessions at the beginning and end of the research period. Responses will be analyzed for evidence of change in attitude.

## CHAPTER 3: QUESTIONS AND TASKS

During the process of my action research intervention, questions will be posed and tasks associated with those questions will be completed. To reiterate, the projected outcomes of the completion of these tasks are that data are used to adjust instruction effectively (Goal 2), teachers become more adept at collaborating within the PLC environment (Goal 3), and the gap between the three selected pairs of schools closes by five percentage points (Goal 1). The development of these tasks required the use of literature on a variety of subjects.

Goal 1 refers to closing the gap between EOG composite scores in three school pairings. At the inception of this study, an analysis of EOG data revealed a distinct relationship between descending levels of proficiency on EOGs and ascending levels of students receiving free and reduced lunch. Further analysis of the EOG data showed that the relationships were even more pronounced in schools with high populations of African-American students. These facts led me to a body of literature focused on race, poverty and education. In this area, Davis-Kean and Jagar (2014) and Swain (2006) discuss the achievement gap that exists based on both race and income levels. In that discussion they acknowledge the gap and argue that it is due, in part, to instructional practices at the schools. These findings led me to literature relating to background information of the involving the conceptualization RtI because early reading interventions were touted as solutions to the racial and poverty achievement gaps. Researchers showed that, with direct, targeted instruction, many low performing students were able to catch up to their peers in one school year (Clay, 1987; Fuchs & Fuchs, 2006; Jones et al., 2012). Fuchs & Fuchs, 2006 expanded on the concept of using targeted instruction to close academic gaps by going on to describe a framework, RtI, in which a problem-solving approach is used to create a tiered intervention system in which students receive varying levels of academic support in an effort to

close achievement gaps. Within the RtI framework, appropriate assessment practices (Ball & Christ, 2012; Shinn, 2007) are required in order to correctly identify students at-risk of failure and, after interventions are applied, to monitor the efficacy of the prescribed remediation. Consequently, educational assessment became another venue for research.

Much of the work regarding RtI grew out of research related to social justice and special education. Therefore, a linkage is shown between this topic and this dissertation study. Clay (1987) conducted her early research on Reading Recovery to determine whether 1st grade students receiving special education services responded differently to intensive reading intervention than general education 1st grade students who were struggling to learn to read. Allington and Walmsley (2007) and Fuchs, Fuchs & Speece (2002) argue that many learning problems can be ameliorated through strong instruction in the regular education classroom and, thus, some students were misidentified as learning disabled when, in fact, they may only require differentiated instruction in the classroom. Studies such as these led to federal legislation and policies related to requirements for teachers to first use a process to identify a student's specific areas of academic concern and apply interventions in an attempt to remediate them before students referring students to special education. These requirements were first laid out in the Elementary and Secondary Education Act (ESEA) and later in the No Child Left Behind Act (NCLB) and most recently in the Every Student Succeeds Act (ESSA). While the enactment of ESSA in December, 2015 required some changes in the areas of testing and funding, the language related to obligations associated with educating students at-risk of failure remained virtually the same as in NCLB (Executive Office of the President, 2015). Therefore, the tenants of MTSS remain relevant.

As noted above, Goal 2 of my study proposes that, through the course of this study, teachers will become more comfortable with methodically using data to inform instructional practices used in their core instruction. This will not involve the utilization of approaches that are foreign to the teachers, since as van Geel, Keuning, Visscerh, and Fox (2016) asserted, "teachers collect information about their students all the time: They ask questions, observe students, and examine student work. Mostly teachers process this information to help them make informed decisions. However, this may not always be done *systematically*" (p. 362). Transitioning the data utilization process from one that involves individual teachers informally analyzing their classroom data to on the involves meeting in PLCs to systematically analyze grade level, classroom, and individual student data will require professional development as well as district-level support (Campbell & Levin, 2009).

Goal 3 of my study suggests that teachers will find value in working in PLCs, and will embrace collaboration not only as a necessary component of professional success but also as a source of personal satisfaction. Indeed, Wenger, McDermott, and Snyder (2002) envisaged a progression towards personal satisfaction that builds upon the instrumental value of improved teaching emerging from the PLC. As they conjectured,

> This value is not merely instrumental for their work. It also accrues in the personal satisfaction of knowing colleagues who understand each other's perspectives and of belonging to an interesting group of people. Over time, they develop a unique perspective on their topic as well as a body of common knowledge, practices, and approaches. They also develop personal relationships and established ways of interacting. They may even develop a common sense of identity. They become a community of practice. (p. 5)

Lave and Wenger (1991) and Spillane (2002) attributed the emergence of a sense of identity to participation in communities of practice (CoP)—due, in part, to the ability of newcomers (novice teachers) to interact with experienced teachers in a situated learning environment in which all team members are active participants in solving problems relevant to

their lives. While CoPs are theoretically different than PLCs as I go on to explain, many of the same benefits of CoPs can be attributed to PLCs (DuFour, 2011; DuFour, Eaker, & DuFour, 2005; Hord, 2008). A key difference between the two collaborative models is team membership. In CoPs, groups are comprised of "people who share a concern, a set of problems, or a passion about a topic" (Wenger, McDermott, & Snyder, 2002, p. 4). Conversely, PLCs are required for all staff members and function as a form of continual professional development. Rewards accruing to participants in both types of collaborative teaming amount to the opportunity to engage in rich discourse that leads to the development of solutions to difficult problems. For this study, the term PLC will be used since schools in Medium District completed a study of DuFour, Eaker and DuFour's (2005) *On Common Ground: The Power of Professional Learning Communities* several years ago as a prelude to the obligatory implementation of PLCs in Medium District. I anticipate that this prior exposure to the concept of PLCs will facilitate teachers' ability to build on prior knowledge.

**Goal 1**

*Will the use of an MTSS approach help schools close student achievement gaps currently identified between similar schools?*

Goal 1 espoused the implementation of MTSS as a method to close achievement gaps between 3 school pairing. At the end of the cycle, an analysis of *mCLASS* data will be conducted to determine if the gaps have been closed, and interviews will determine if teachers attribute MTSS as a mitigating factor in their success or failure to do so.

**Goal 2**

*How do teachers use data to inform future instructional practice?*

My earlier statement of goal 2 implies that teachers will become more comfortable using data to inform instruction for their whole class, as well as for individual students. Therefore, there is an expectation that participating teachers will use (TIPS) to analyze core instruction at grade level PLCs. In the following, I use portions of a problem-solving template to illustrate the steps I will take. The template can be seen in its entirety in the Appendix C. The use of this template will guide teacher through the process and ensure they complete each step.

Step 1: Participating teachers will decide on data points to use in order to identify an academic problem that they believe may be causing students not to achieve proficiency on assessments. The emerging problem statement will be written and critiqued until strong consensus is achieved. Figure 4 shows the first section of a completed action planning template for 115 students in Grade Three.

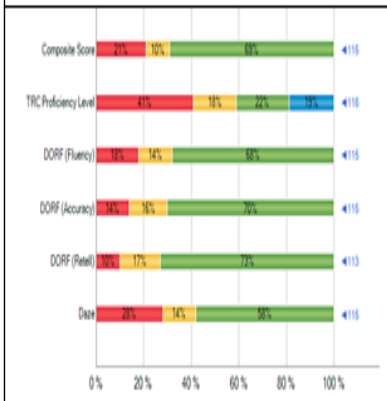
In this section, PLCs are encouraged to gather a variety of data to assist in determining specific skill gaps. This example shows data gathered by members of a 3rd grade PLC on the number and percentage of students who performed at each achievement level (levels 1-5) on the state's Beginning of Grade (BOG) assessment. The BOG, an assessment of reading skills, is administered between the 11th and 15th days of school and is used as a baseline score to determine academic growth at the end of the school year for third graders. Achievement levels each have predetermined cut scores that correlate to the achievement levels reported on the EOGs. BOG data is included because it can be used to determine the level of instructional support students may need. Additional data that was gathered on the template includes the percent of students correctly answering at least 70% of the questions on a district created reading benchmark assessment and data from curriculum-based measures (CBMs). The CBMs used in this case are: Dibels Oral Reading Fluency (DORF), which measure fluency, accuracy and

School: Awesome Elementary Grade Level: Third Grade

| BOG | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|
| 115 students<br>22/115 (19%) | 54 (46.9%) | 29 (25%) | 11 (9.5%) | 19 (16.5%) | 2 (less than 1%) |

| Benchmark Assessments | Benchmark 1 | Benchmark 2 | Benchmark 3 |
|---|---|---|---|
| Percent of students with 70% correct or higher. | 68% (District 65%) | | |

**Identify the Problem:**

| BOY | MOY | EOY |
|---|---|---|
|  | | |



**Identify the Precise Problem Statement:**

On the BOG, only about 19% of all 3rd graders scored in the proficient range. 68% were considered proficient on the first district reading benchmark assessment and 68% met the state's expectation for reading fluency on the MClass DORF assessment. We are going to target the fluency as our underlying problem.

*Figure 4.* A section of a completed action plan that illustrates the collection of various data and a problem statement that was developed based on the data.

comprehension; Text Reading Comprehension (TRC), and DAZE, a cloze passage assessment of comprehension. Each of these assessments is given at the beginning of the year (BOY), middle of the year (MOY) and end of the year (EOY). The CBMs are crucial to the MTSS framework because they are used to screen all students for academic weaknesses and include progress monitoring tools measure student's rate of improvement. This information is then used to adjust instruction with agility.

After analyzing the data, team members noted that only 68% of their students met the proficiency expectation on the local benchmark and 68% of their students met the fluency expectations on the DORF. A deeper analysis showed that most of the students who had not passed the benchmark assessment had also not met the fluency expectation. Therefore, they identified the root problem as fluency since lack of fluency is related to low comprehension skills.

Step 2: Participating teachers will brainstorm possible instructional shortcomings, deficiencies in the curriculum being implemented, and negative educational environment factors. They will then meet across grade levels—and possibly across schools—in order to canvass opinions regarding which instructional, curricular and/or environmental concerns are the most likely to be negatively impacting student achievement. Figure 5 is a sample of the process and shows the various instructional solutions suggested during a brainstorming session aimed at developing instructional practices to help students increase reading fluency. Under the "Develop Hypotheses" section, a description of the next steps in the process is included on the form as a reminder for the teachers.

**Develop Hypotheses (Why is the Problem occurring?)**

| **Instruction:** | **Curriculum:** | **Environment:** |
|---|---|---|
| Not enough independent reading time | Not enough books | Independent reading not monitored |
| Summer slide | No phonics curriculum materials | Classroom management |
| **Not enough modeling of fluency** | Not enough books on students' levels | |
| Not enough 1:1 conferencing | | |
| Not enough phonics instruction | | |
| Not enough sight word instruction | | |
| Didn't teach students how to use punctuation | | |
| Not teaching phonics curriculum | | |

**RIOT: Review, Interview, Observe, Test your hypotheses:**

- **Current grade level reviews and interviews previous grade level teachers to confirm hypotheses in the above categories. (Only at the beginning of the year )**
- **Highlight the hypotheses for areas of primary focus.**
- **Continue to next section to brainstorm solutions.**

*Figure 5.* An example of the results of a brainstorming session focused on instructional strategies that may help 3rd grade students increase their reading fluency.

This completed section of the template documents the brainstorming session that took place after the students' low fluency rates were identified as the instructional focus. Teachers acknowledged possible problems in each of three areas: instruction, curriculum, and environment (ICE). After brainstorming, team members came to a consensus and chose to focus on lack of explicit modeling of fluency as the target instructional practice in the next step of problem-solving process.

Step 3: Once opinions regarding the most salient factors are clarified, the PLC members will brainstorm possible solutions, and then agree upon the solutions they believe will have the most impact on learning. This step will culminate in the writing of an action plan that all teachers in the grade level will agree to implement. The written plan will also include both short-term and long-term goals that are specific, measurable, attainable, realistic, and timely (SMART) and identify how progress to these stipulated goals will be assessed. Figure 6 shows the action statement and measurable goals that were created after a discussion among 3rd grade teachers and the associated goals that were developed. In this example, the teachers chose to incorporate shared reading of a poem into their whole group lesson plans at least two times a week for ten minutes. They also agreed to pre-teach or re-teach the shared reading lesson with identified students in small groups at least two times a week for five minutes. They set short term and long term SMART goals and determined rules for monitoring students' growth toward the goals.

Step 4: A spreadsheet will be used by teachers to regularly document student progress. The spreadsheet will then be used in the review meeting to document the progress being made toward the goal. Figure 7 is a screen shot of a hypothetical spreadsheet for a review meeting. The spreadsheet includes the names of students who did not meet BOY goals

**Discuss and Select Solutions:**

| |
|---|
| We will use poetry to conduct shared reading aimed at fluency instruction for all students and repeat choral reading in small groups. |

**Develop and Implement Action Plan:** (Use solutions from section above to complete Action Plan below.)

| Who? | What? | Where? | How Often? |
|---|---|---|---|
| Classroom teachers | will use shared reading of poetry | Whole group<br><br>Small group | two times a week for 10 minutes<br><br>two times a week for 5 minutes |

**How will we know students are learning?**

| | |
|---|---|
| **Baseline Scores:**<br>18% were far below expectations, 14% were below expectations and 68% met the expectation. (BOY expectation-70 wpm; MOY expectation will be 86 wpm) | **Short Term Goal:** By Nov. 4th, 80% of students will read with 78 words per minute.<br>**Long Term Goal:** By the MOY assessment, 80% of students will read with 86 words per minute. |

**Measurement Strategies**

| | | |
|---|---|---|
| **Who: Classroom Teachers** | **With What: Progress Monitoring and Benchmark Assessments** | **How Often:** Students in red: every 10 days, Students in yellow: every 20 days; Students in green: once before Nov. 4. |

*Figure 6.* An action plan, goals and monitoring expectations for students who demonstrated a lack of fluency skills.

| | A | B | C | D | E | F | G | H | I | J |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | **Last Name** | **First Name** | **Teacher** | **BOY-fluency** | **PM1** | **PM2** | **PM3** | **PM4** | **Met Short-term goal? Nov. 6** | |
| 2 | A | Student | Teacher 1 | 37 | 37 | 26 | 40 | 45 | No | |
| 3 | B | Student | Teacher 2 | 62 | 65 | 67 | 60 | 72 | No | |
| 4 | C | Student | Teacher 4 | 70 | 78 | 84 | 86 | 90 | Yes | |
| 5 | D | Student | Teacher 3 | 53 | 60 | 54 | 66 | 71 | No | |
| 6 | E | Student | Teacher 1 | 55 | 58 | 55 | 69 | 78 | Yes | |
| 7 | F | Student | Teacher 3 | 66 | 75 | 70 | 82 | 84 | Yes | |
| 8 | G | Student | Teacher 2 | 41 | 55 | 50 | 63 | 70 | No | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |
| 11 | | | | | | | | | | |

*Figure 7.* A sample spreadsheet used to document student data to be used at a review meeting.

for DORF fluency, their BOY score, progress monitoring (PM) results, and a column to indicate if the student met the short-term goal.

### Goal 3

*Does conducting data analysis as a key function of PLCs help teachers become more comfortable with the process?*

Goal 3 indicates that teachers' belief in the value of PLCs as a means of professional growth will increase through the course of this study. To scaffold the employment of PLCs, the first rounds of the problem solving process will be completed with me leading the PLC through each step. I will use a gradual release process in which I move from leading the process to facilitating as the teachers lead the process and, eventually, leaving the teachers to complete the process independent of my support. However, I will remain available to answer questions via email or attend meetings as needed. Performance measures on this question will include the length of time and number of cycles of the process required for teachers to become comfortable implementing the use of PLCs for problem solving instructional practices and through survey questions using a Likert scale.

## Study Plan

This dissertation study will be conducted as a multi-site case study (Yin 2014) using a qualitative approach (Creswell, 2014). Each site has a unique set of demographics, staffing profiles, and level of administrative support so I will use data from all three of the school pairings (S8-S3, R4-R2, and U3-U1) to inform the overall conclusions drawn as a result of this research. Specifically, I will analyze the data to determine any parallel or convergent themes.

As the MTSS coordinator in Medium District, I will be an active participant throughout the study, and thus there will be an ethnographic approach to this work (Creswell, 2014). Figure 8 shows a Gantt chart that illustrates the improvement cycles that will be used during this study.

During the first cycle, I expect to act as the facilitator of the PLCs in an effort to model the problem-solving process. As the project moves into Cycle 2, my role will switch to that of coach as the teachers take the lead in problem solving. In Cycle 3, my role will move into a research and evaluator function.

Since MTSS is new to the school district, professional development delivered by Department of Public Instruction (DPI) consultants will be the first step in the process. I anticipate that this will ensure a common understanding among district and school level administrators. School psychologists and the district MTSS coordinator (myself) will then replicate the training at the school level so that teachers will receive similar information to that conveyed to the principals and assistant principals. Once all school-oriented stakeholders have a common understanding, a core analysis will be completed with grade level PLCs as a means of identifying possible gaps in instruction. After grade levels collect data from a variety of sources, they will triangulate the data and use a problem-solving process to identify a specific area of instructional need. The problem-solving process will involve brainstorming instructional practices, curriculum, and environmental issues that may have led to the identified problem. Once the team chooses an issue on which to focus, they will brainstorm possible solutions, and, after group discussion, identify a specific instructional practice, and possibly an additional curricular or environmental change that they will make in their action step. The culmination of the problem-solving process will be a plan for the action step to remediate the perceived instructional need.

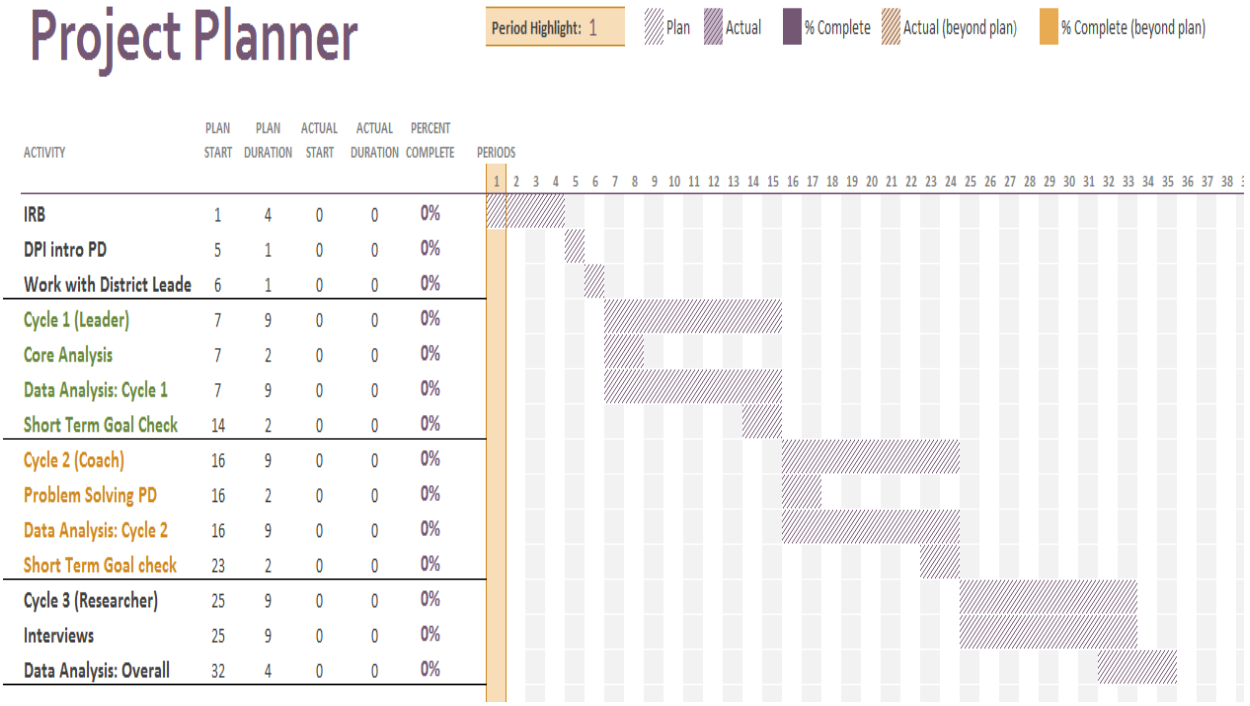



*Figure 8.* A Gantt chart illustrating the planned research activities and the cycles of data analysis that will be used in the PLCs.

After implementation of an action step, teachers will compile relevant data and meet as a PLC to determine the effectiveness of that preceding action step. At that time, they will again use a similar problem-solving process to determine their next course of action. Finally, at the end of the academic year, school leadership teams and grade level PLCs will analyze *mCLASS* data.

# CHAPTER 4: DATA COLLECTION AND ANALYSIS

At the outset of this study, schools were identified as target schools using End-of-Grade (EOG) test scores. Each of the chosen schools (see below) was partnered with a school with similar percentages of students living in poverty (defined as percentage of students receiving free or reduced lunch), but with earned student performance scores notably below that of the chosen school. These pairings are indicated in Figure 9 (chosen suburban school S8 with suburban school S3, chosen rural school R4 with rural school R2, and chosen urban school U3 with urban school U1).

The relative positions of the pairings across the percentage continuum of free or reduced lunch is informative in itself: the urban school cluster at the higher percentage end of the spectrum, the suburban schools in the middle and extending to the lower end of the continuum (with some exceptions), and the rural schools in the middle of the continuum. My expectation at the time I successfully defended my proposal was that the attendance zones for the schools would remain invariant over the course of my study. However, the Board of Education in Medium District redrew attendance zones for the 2015-2016 school year, and schools were affected in various ways, including shifts in demographics, the integration of several school cultures into a new school, and changes in the number of students and teachers in the building. Schools' student performance scores were affected to varying degrees, as illustrated in Figure 10. These data elucidate the effect, positive and negative, of redistricting on many of the schools in the district. In the year following redistricting, fluctuations in scores across the schools in Medium District ranged from a positive change of 18.1 percentage points (S2), to a negative change of 9.5 percentage points (S3).

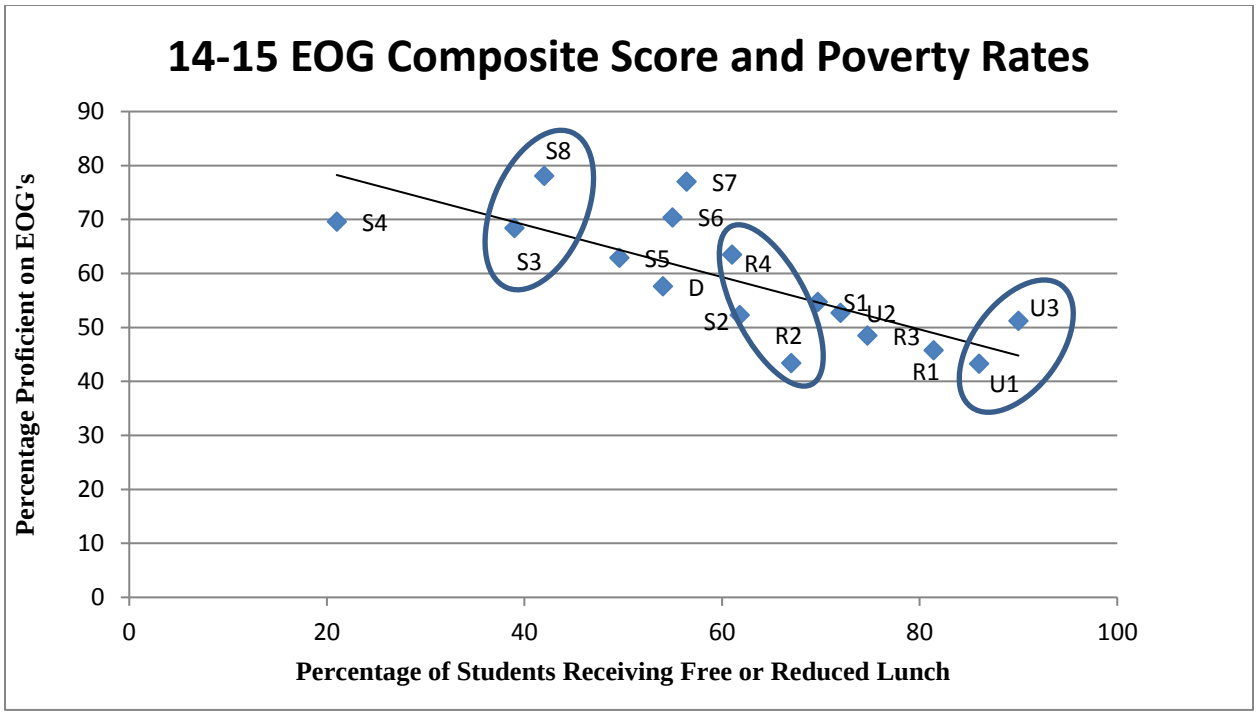



*Figure 9.* The average percent proficient on 2014-2015 EOG composite scores in Medium District with indications of notional pairing.

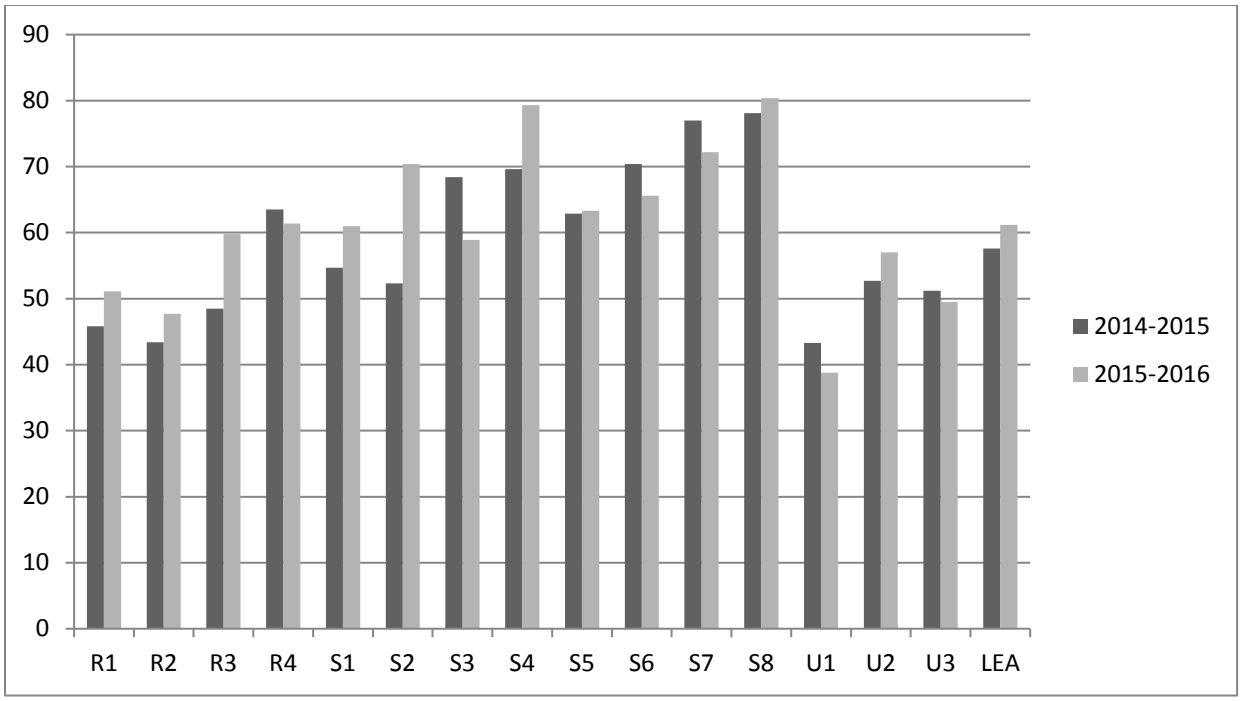



*Figure 10.* Changes in EOG scores during a two year period that shows the effect of redistricting on student performance across the district.

## Impact of Redistricting

The changes highlighted in Figure 10 suggest a potential future study into the impact of redistricting, however, even with the impact of redistricting; the originally identified pairs continue to be notable. Figure 11 includes just the paired schools, for the sake of clarity.

Figure 12 redraws the graph used to support the existence of the problem of practice—based on 2014-2015 data—but utilizing these new EOG data for the 2015-2016 school year. Figure 13 validates that the differences featured in the original gap analysis continue to be noteworthy after redistricting. At the same time, these data also show changes in the gaps between the pairings. For instance, the gap between S8 and S3 grew by 11.8 percentage points, and the gap between U3 and U1 grew by 2.8 percentage points, while the difference between R4 and R2 closed by 6.4 percentage points.

In terms of the free or reduced lunch status, the two schools most affected by redistricting were S3, with a 16.63% increase, and U3 with a 12.92% increase. Figure 13 indicates the changes in students receiving free or reduced lunch after new attendance zones were created. The combination of the changes in the poverty measure and the proficiency outcomes lead me to expect that the achievement gap between S3 and S8 may increase as the gap between levels of poverty in the schools grew. In the original pairings, the poverty gap between S3 and S8 was 0.5%, with S8 having a slightly larger population of students receiving free or reduced lunch. Post redistricting, the poverty gap between S3 and S8 grew to 14.28%, with S3 housing the larger percentage of students living in poverty. While the S3-S8 pairing experienced the largest change, the U1-U3 shifts in poverty levels are also notable.

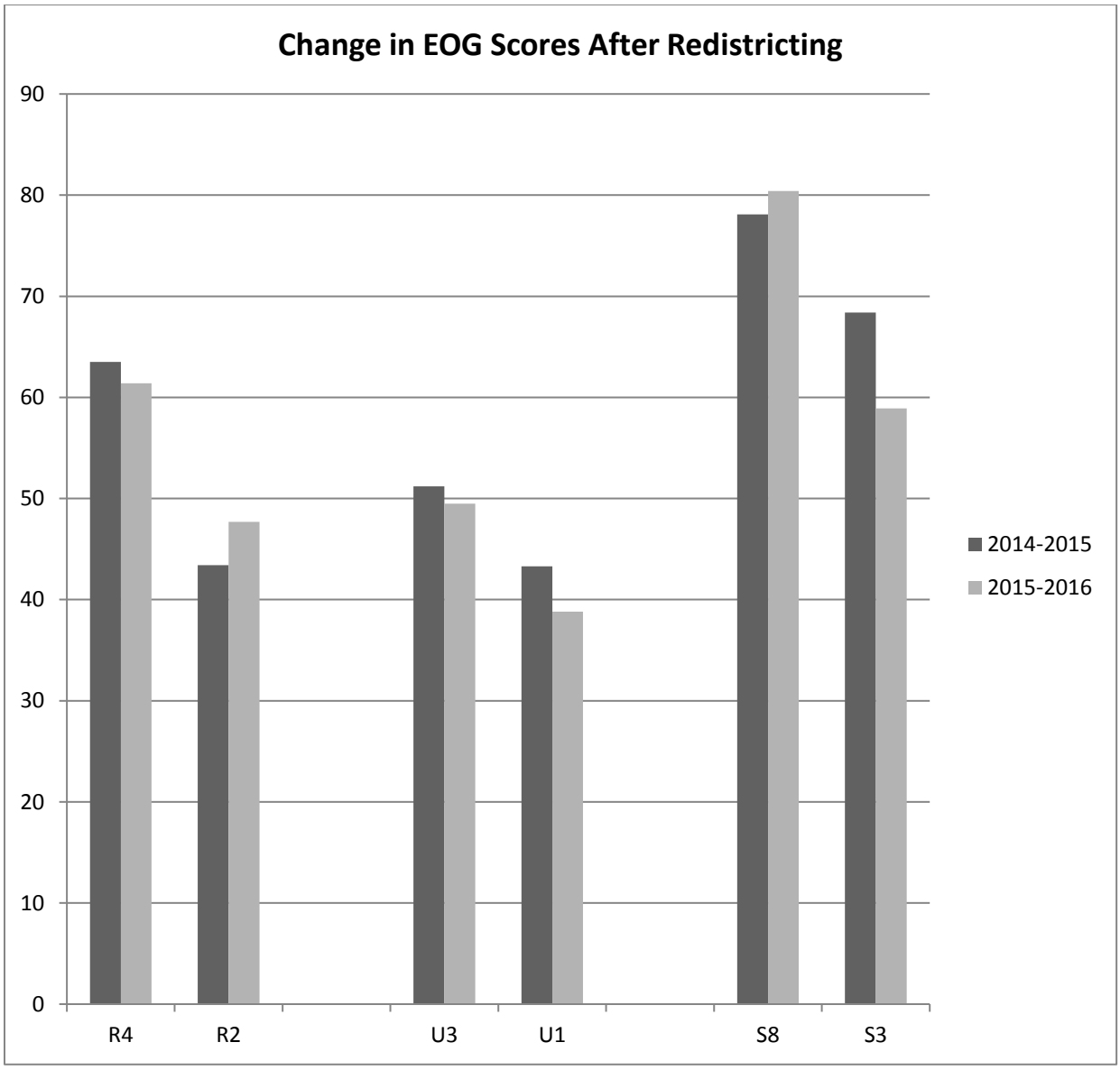



*Figure 11.* Changes in EOG scores from 2014-2015 to 2015-2016 showing the effect of redistricting on student performance in the paired schools.

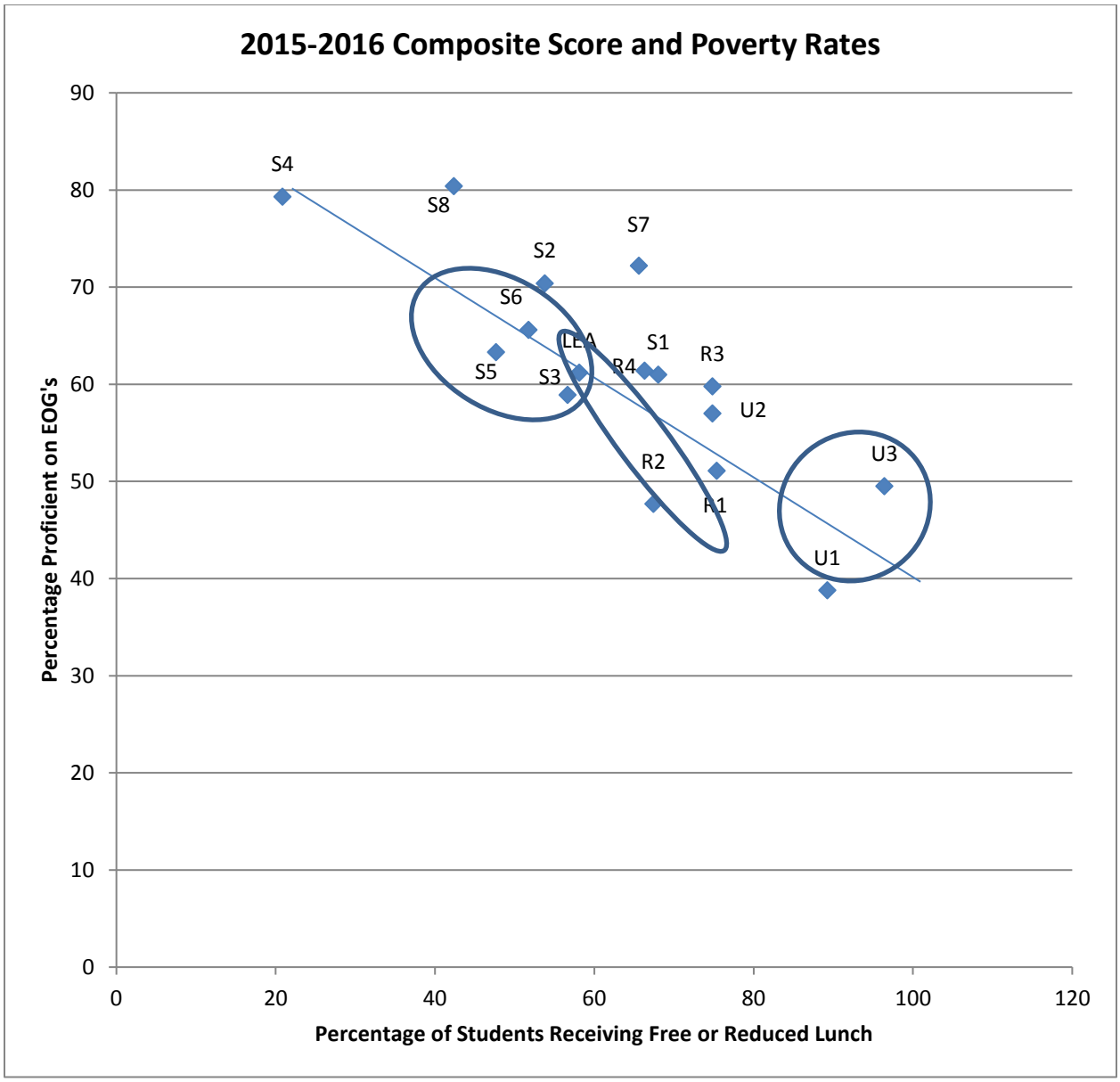



*Figure 12.* The average percent proficient on 2015-2016 EOG composite scores in Medium District with indications of notional pairings.

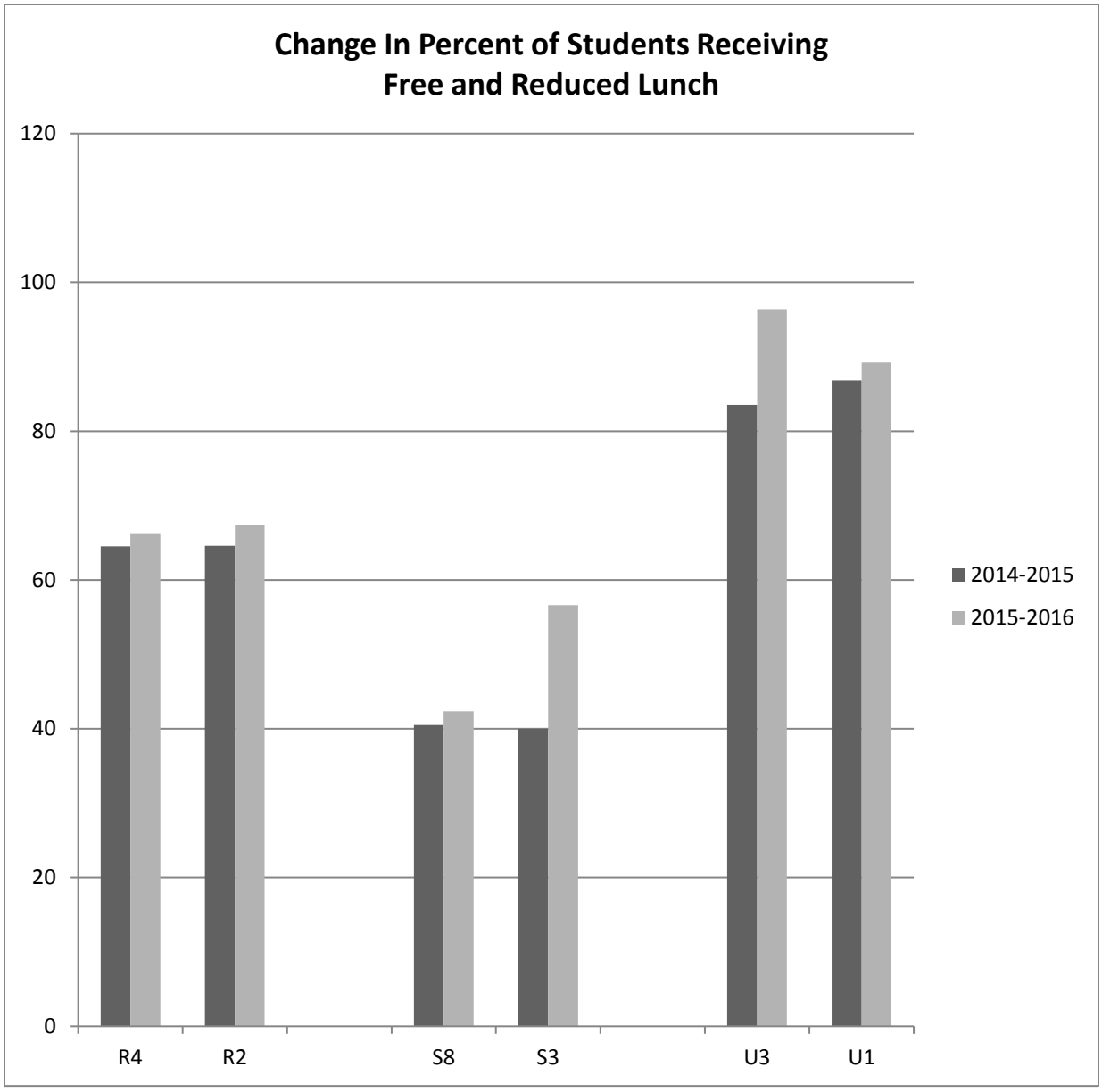



*Figure 13.* Changes in percentage of students in paired schools receiving free or reduced lunch after redistricting.

## Rationale for Changing Indicator of Academic Achievement

Goal 1 of this study proposed to "close the student achievement gap between the schools in the selected pairings by five percentage points on composite EOG scores." Since post-redistricting EOG scores showed a mediation of the gaps identified before redistricting, this goal is no longer as pertinent as it was at the time my proposal was approved. However, the spirit and intent of Goal 1 may be addressed by the use of data that is more sensitive to the impact of improved instruction, as I proceed to explain.

## *mCLASS* Reading 3D Process

During PLCs, teachers routinely gather and analyze data gleaned from *MCLASS* Reading 3D assessments. *MCLASS* assessments include the Text Reading Comprehension (TRC) which measures accuracy and comprehension, as well as various skills based assessments that measure foundational reading skills. These nationally normed Curriculum Based Measures (CBM) are administered during three benchmarking periods spread throughout the year: Beginning of Year (BOY, September), Middle of the Year (MOY, January), and End of Year (EOY, May).

Additionally, *MCLASS* provides progress monitoring capabilities that allow teachers to track students' progress toward their goals. After each benchmarking period, teachers, in grade level PLCs, analyze the data to determine the grade level's instructional focus through the use of Team Initiated Problem Solving (TIPS). Figure 14 shows a kindergarten example of the problem solving protocol used to identify the grade level academic concerns. The box labeled "BOY" has a graph indicating the percentage of students scoring at grade level (green), below grade level (yellow), or far below grade level (red). Teachers use these data to identify their grade level's instructional challenge, and then follow the TIPS protocol to develop an instructional action plan to target that instructional challenge. In this case, the grade level instructional challenge is that

**Identify the Problem:**

| BOY | MOY | EOY |
|---|---|---|
|  | | (**Insert 3D Measure Breakdown graph here.** To find this graph in Amplify, click on "Reporting" tab and then click on "mCLASS: Reading 3D DIBELS Next" tab, choose "3D Measures Breakdown. Use a tool such as "snip-it" and cut and paste the graph in this space) |

**Identify the Precise Problem Statement:**

(State the precise problem the grade level team identified from the RIOT process used above that will be monitored until the next review date.)

**BOY** 51% of kindergartners were on grade level in TRC at BOY, 18% of students were below grade level and 31% are far below grade level. Our students need to work on sight words in context.

*Figure 14.* Kindergarten example of the TIPS process used to determine changes in instructional practices.

49% of the kindergarten students were not proficient on the TRC (18 + 31%) because they were unable to identify sight words in the context of text.

Once teachers acknowledge the instructional challenge, they initiate a problem solving process to identify instructional, curricular, and environmental (ICE) factors potentially implicated in the instructional challenge. Figure 15 is a section of the TIPS template that captures the problem solving process in which teachers brainstorm to develop a list of potential factors implicated in the instructional challenge: that 49% of students cannot read sight words in context (from Figure 14). After the brainstorming session is complete in each of the categories of ICE, teachers go on to brainstorm instructional practices that may be pertinent to the instructional challenge.

The next step in TIPS stipulates that the teachers should select instructional practices from among those they brainstormed, and develop an action plan they will follow for six to eight weeks. The action plan incorporates short term goals and designates a date for a review meeting. The purpose of the review meeting is for teachers to analyze their progress monitoring data to determine the effect their selected instructional practices have had on student outcomes and decide if they will continue with these instructional practices or choose different ones. The continuous improvement cycle this represents runs repeatedly until core instruction results in at least 80% of students meeting grade level proficiency expectations.

**Relating TRC and EOG Scores**

Since EOG scores were identified for data analysis in my proposal, it is crucial to note that TRC and EOG scores are associated. Consequently, the differences in terms of EOG scores are associated with similar changes in TRC scores. Figure 16 illustrates that, when comparing change in EOG to change in TRC proficiency across all the schools in Middle District, there is a

| **Instruction:**<br><br>**BOY**<br>• Too much time with flashcards<br>• Not enough authentic text for instruction<br>• Didn't explicitly instruct students on WHY we are teaching sight words<br>• Not enough learning activities to find the sight words in context | **Curriculum:**<br>(Brainstorm lack of materials and/or inappropriate materials or misalignment of standards that may be contributing to the identified problem.)<br>**BOY**<br>• No scope and sequence for teaching sight words<br>• Didn't use high enough level text for them to practice reading the sight words in context. | **Environment:**<br>(Brainstorm factors within the control of the school such as: structure of classroom, classroom layout, and grouping of students (whole group/small group), class schedule, and class size.)<br>**BOY**<br><br>It's the beginning of the year and they are still adjusting to school |
|---|---|---|
| **RIOT: Review, Interview, Observe, Test your hypotheses:**<br>• **Highlight the hypotheses for areas of primary focus.**<br>• **Continue to next section to brainstorm solutions.** | | |
| **Instructional Solution Ideas:**<br>(Brainstorm ideas that could correct the identified problem.)<br><br>**BOY**- Shared Reading, predictable sentences, letter books, sight word books (sight words in context); Curriculum Night for parents | **Curriculum Solution Ideas:**<br><br>**BOY**- Using more advanced materials sooner in the year than in the past.<br><br>**MOY**<br><br>**EOY** | **Environment Solution Ideas:**<br>(Brainstorm ideas that could correct the identified problem.)<br><br>**BOY**- Sharing ideas of what to work on with parents |

*Figure 15.* Kindergarten example of the brainstorming process to identify instructional, curricular, and environmental (ICE) factors potentially implicated in the instructional challenge.

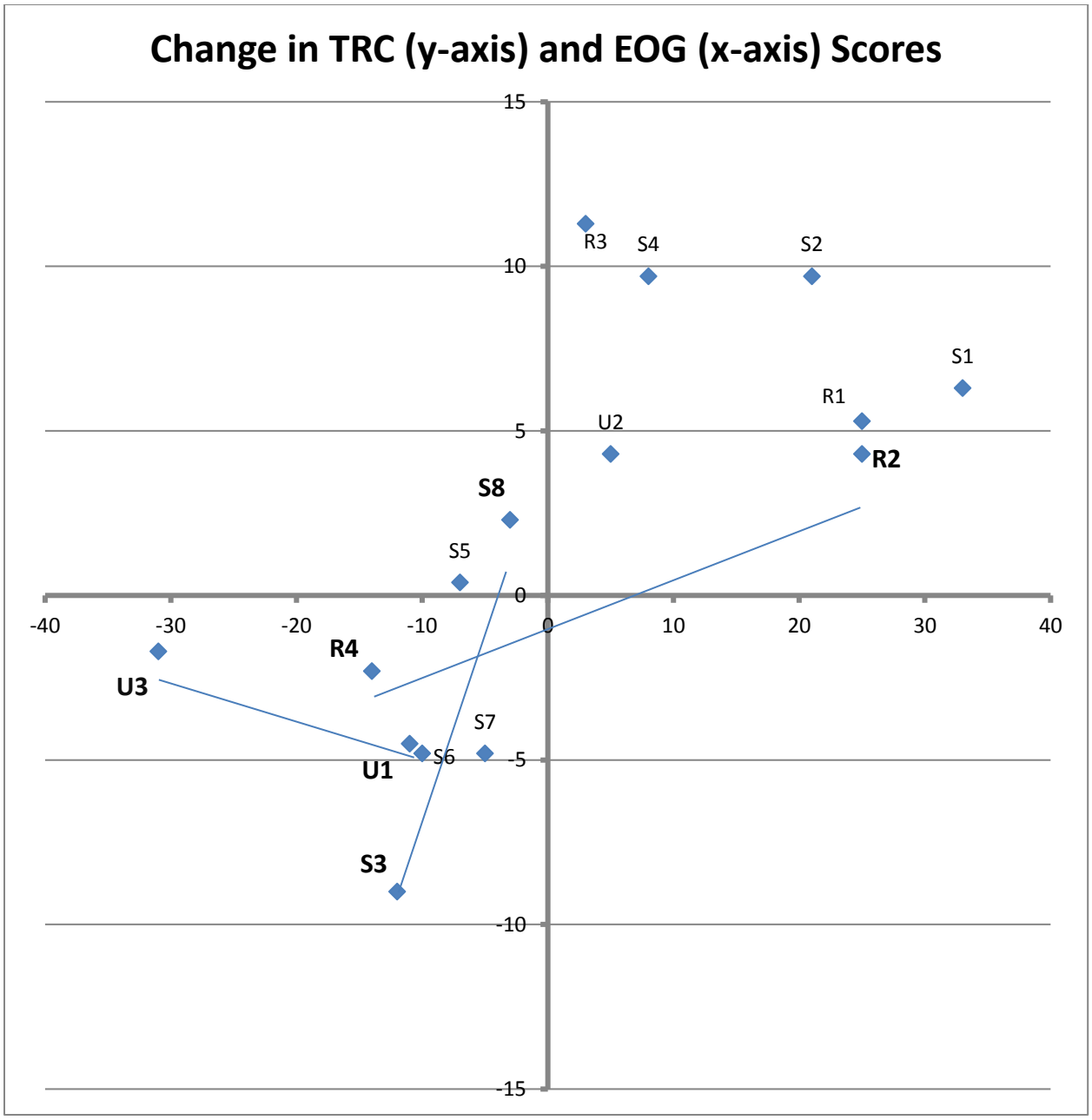



*Figure 16.* Association between EOG and TRC proficiency after redistricting with connections drawn between the original notionally paired schools.

clear association between the two. For instance, seven schools fell in quadrant one—meaning they showed gains in both TRC (y-axis) and EOG (x-axis) scores. Six schools are in quadrant three because proficiency in both EOG and TRC positive growth on TRCs. Seven schools exhibited growth in both EOG and TRC. The codes of the schools notionally paired in my study are bolded and the paired schools are connected by a line.

Having explained my rationale for considering TRC assessments rather than the EOG assessments I initially proposed, I will now proceed to discuss the findings of my study.

## Findings

This section begins with an analysis of findings organized by the main goals of my study. Following consideration of the findings as they relate to my goals, I will discuss additional data related to those findings.

### Goal 1: Close the Achievement Gap

As outlined above, the TRC assessments, administered by teachers who are committed to improving the prospects of their students for future success, provide a highly sensitive, individualized window into the achievement of students. Thus, the TRC assessments are ideally suited as measures of improvement for my study. In order to ensure the final data will reflect the fullest and latest situation, data from MOY 2015-2016 will be compared to MOY 2016-2017 data.

As stated previously, the first goal of this study was to close the student achievement gap between schools in each of the identified pairings. The measurement used for this goal is the change in percentage of students who are deemed proficient on the TRC assessment given to all North Carolina public school students in kindergarten through third grade. The proficiency rates used as baseline data are the results of the MOY assessment for the 2015-2016 school year.

Figure 17 is a graph using coordinates that represent each school's 2015-2016 MOY TRCproficiency (y-axis) and poverty rates (x-axis) calculated after redistricting occurred. Notional pairings identified at the commencement of this study are indicated by ellipses.

One of the important findings of note at the outset is that the relationship between R4 and R2 reversed during the intervention period. The original achievement gap, calculated using 2014-2015 EOG scores, was 20.1%, with R4 realizing higher levels of achievement. However, the latest data, using TRCs and after redistricting occurred, reveals a 23% gap, with students at U2 achieving at higher rates. The gap between the U1- U3 narrowed slightly and the gap between S3- S8 pairings narrowed considerably. The original data indicated the gap between U1 and U3 was 7.9% but in the most recent data, the gap closed to 7%. The gap between S3 and S8 changed more significantly. Originally, the achievement gap between the two was 9.7%. After redistricting, and using the 2015-2016 TRC data, the gap grew to 24%.

Figure 18 represents the relationship between the pairings, using the TRC at MOY 2016-2017, and indicates inconsistent patterns of change between the target schools and the paired schools. The gap between S3 (target school) and S8 widened-from 22% to 24%. The gap between R2 (target school) and R4 narrowed, albeit in a negative manner for the target school-from 23% to 6%. Finally, the gap between U1 (target school) and U3 reversed and reading proficiency at U1 is now 7% higher than at U3.

In accord with my perspective on the problem of practice, these changes may be associated with discrepancies in the level of MTSS training received at each school. It is important to keep in mind the function of the TRC in the MTSS approach to educational achievement. In kindergarten through Grade 3, teachers analyze data received from the assessment to determine gaps in students' reading skills and the MTSS framework enables them

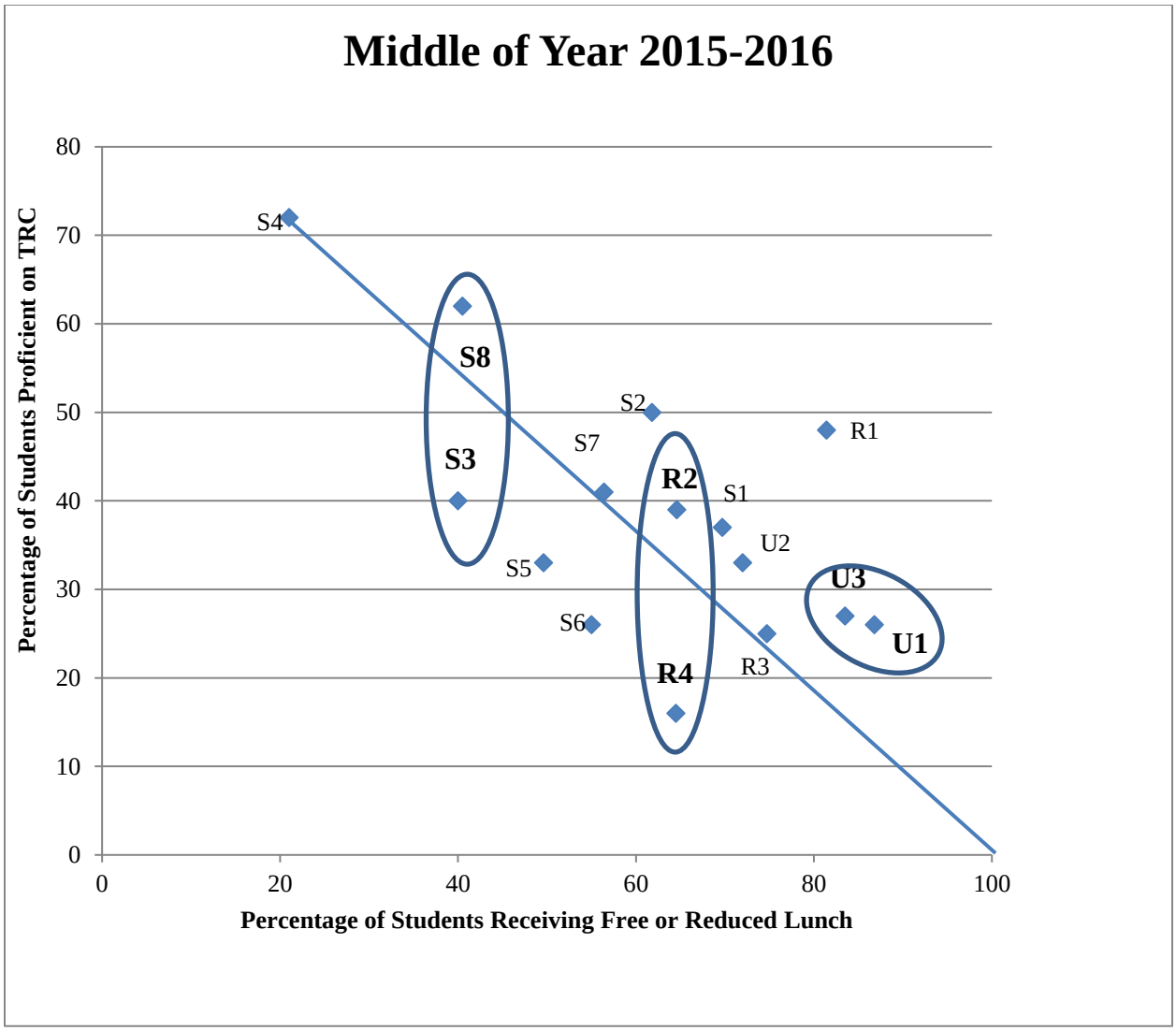



*Figure 17.* TRC proficiency scores on 2015-2016 MOY Reading 3D assessments in Medium District with indications of the original notional pairings.

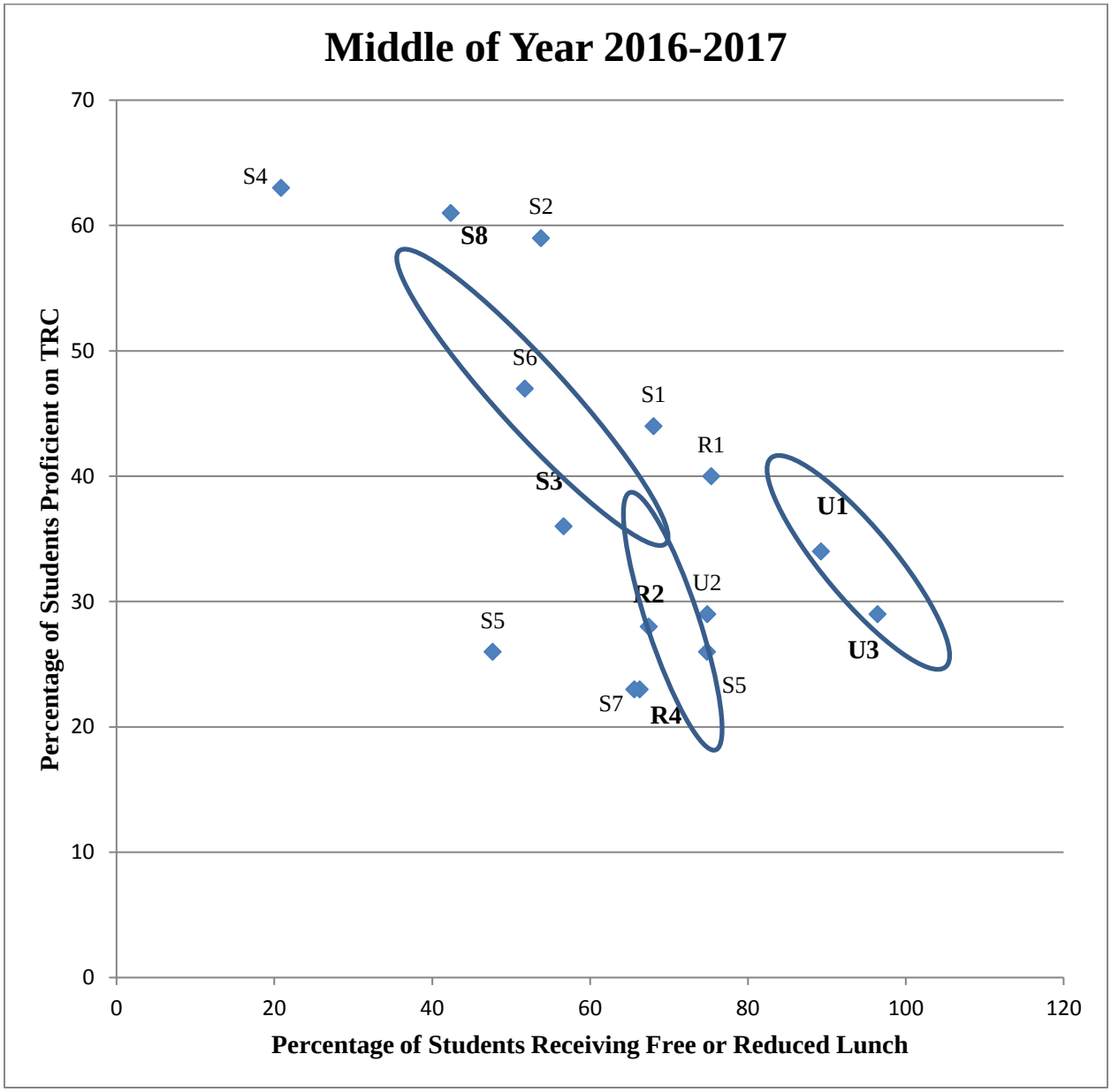



*Figure 18.* TRC proficiency scores at the MOY 2016-2017 MOY Reading 3D assessments in Medium District with notional pairings indicated with ellipses.

to develop an instructional action plan that addresses the gaps. In most elementary schools in Medium District, I acted as coach and facilitator throughout the data analysis and problem-solving process during grade level PLCs.

According to my plan, at the beginning of the district's implementation of MTSS, school administrators were provided professional development regarding MTSS. Then, as the MTSS coordinator in Medium District, I was scheduled by principals to deliver professional development for their teachers via facilitation of grade level PLCs. At that time, my expectation was that each principal would schedule me at least one day per assessment cycle (BOY, MOY, EOY) for me to work with the teachers in their school. Some principals, however, scheduled more coaching visits than others. As Figure 19 shows, the amount of time I spent in each school varied widely. Focusing just on the paired schools, Figure 19 illustrates the overall number of times I worked with grade or school level teams during the 2015-2016 school year to assist in implementing MTSS at each school (within each pairing across the x-axis, the school shown first is the school with the lower percentage of students declared proficient at the outset). Within each pairing, one school received significantly more assistance than the other. The key finding in Figure 19 is that the changes in percent of students declared proficient are not closely associated with the amount of time I spent in each school, leading me to surmise additional factors may need to be in place to ensure the successful implementation of MTSS.

**Implementation of the study plan**. My implementation plan for this study was segmented into three cycles which I designed to enact a gradual release of responsibility from me to the teachers by the end of the study, teachers would feel a greater comfort level with the problem- solving process critical to MTSS. Additionally, my hypothesis was that, as I moved

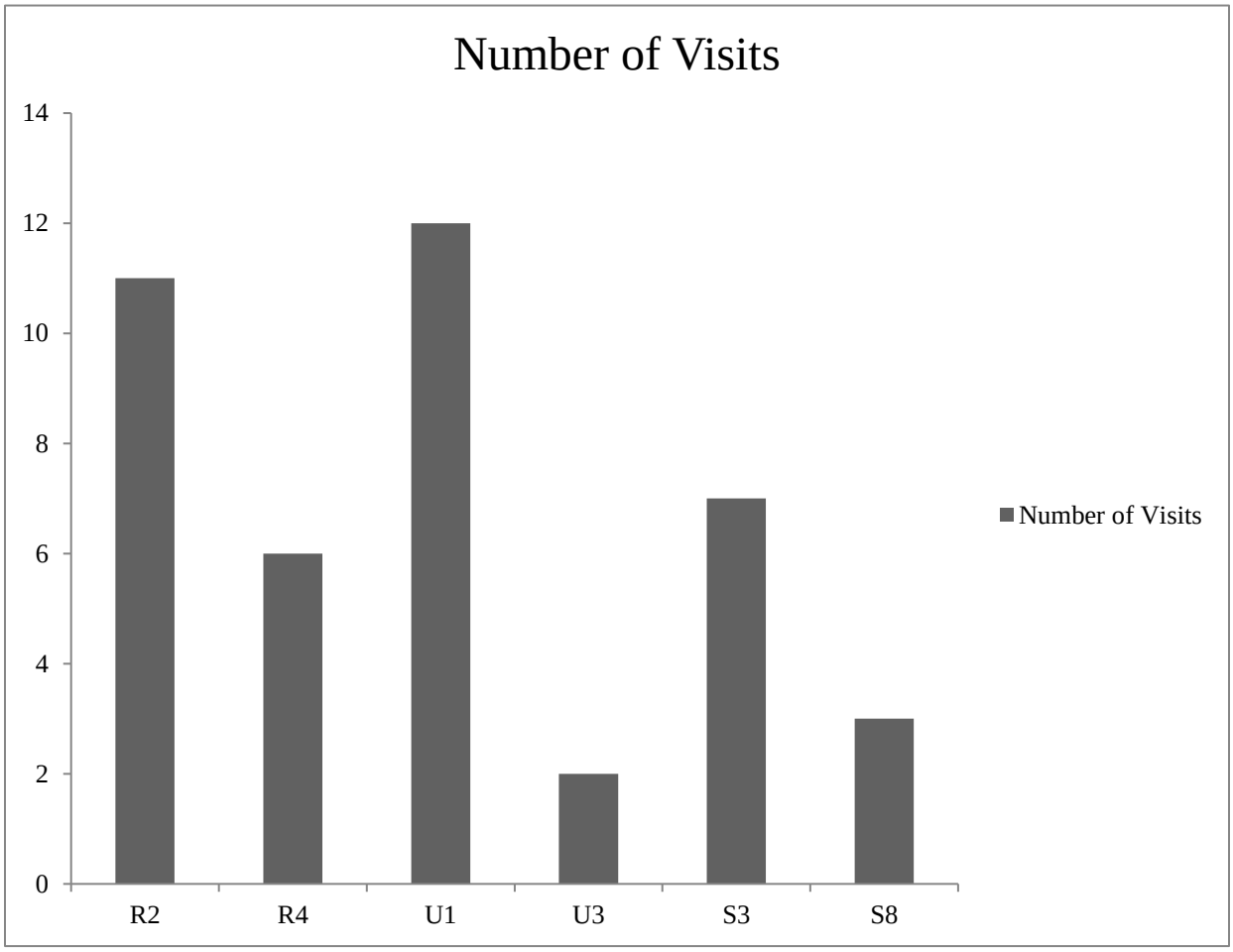



*Figure 19.* Comparison of number of grade or school level MTSS implementation trainings at each of the six schools identified at the outset of this study.

from leading the PLC through the steps of problem-solving, to facilitating the process, and finally to attending in a consultancy role, teachers would increasingly greater facility with using data to make instructional decisions. I conjectured that, by increasing teachers' capacity to make changes to instruction based on student outcomes, the result would be increased student achievement. The cyclical design of this study, and, indeed of the deployment of MTSS, is also relevant in Goals 2 and 3 of this study in that it allows teachers to develop a greater comfort level with the problem solving process required as a part of MTSS. Table 3 illustrates the deployment of each step in the study plan and includes a comparison of the number of times schools in each category received assistance with implementing MTSS. The categories used for this chart include "target schools" (S3, R2, U1) and "paired schools" (S8, R4, U3).

As shown in Table 3, all three of the target schools participated in the Tier 1 problem-solving process in both Cycles 1 and 2. Additionally, each of the three target schools hosted Leadership Team meetings during which we debriefed the first two undertakings in the implementation process. However, only two schools, R2 and U1, engaged in short-term goal analysis and a second cycle of Core Analysis. Also noteworthy is that, of the paired schools, only R4 participated in all proffered opportunities and that U3 did not take advantage of any of the available implementation support.

S**ummative conclusion.** An analysis of TRC data from the Middle of the Year 2015-2016 to the MOY 2016-2017 shows mixed results. Table 4 indicates the change in percentage of students reading at or above grade level as well as the achievement gaps between school pairings and illustrates the discrepancies in outcomes. Additionally, the reversal in achievement between the original R4-R2 pairing is implicated with an arrow.

Table 3

*Number of PLC Meetings Attended during Study Period by Category of School*

| | Target schools | | | Paired schools | | |
|---|---|---|---|---|---|---|
| Research Activity | S3 | R2 | U1 | S8 | R4 | U3 |
| Core Analysis-Cycle 1 | ✓ | ✓ | ✓ | X | ✓ | X |
| Tier 1 Problem Solving-Cycle 1 | ✓ | ✓ | ✓ | X | ✓ | X |
| Leadership Team training | ✓ | ✓ | ✓ | ✓ | ✓ | X |
| Short Term Goal Check-Cycle 1 | X | ✓ | ✓ | X | ✓ | X |
| Core Analysis-Cycle 2 | X | ✓ | ✓ | ✓ | ✓ | X |
| Tier 1 Problem Solving-Cycle 2 | ✓ | ✓ | ✓ | X | X | X |
| Short Term Goal Check-Cycle 2 | ✓ | ✓ | ✓ | X | ✓ | X |

Table 4

*Percentage of Students Declared Proficient in Reading, and the Achievement Gap on the MOY TRC from 2015-2016 School Year to 2016-2017 School Year*

| School | MOY 2015-2016 | Gap | MOY 2016-2107 | Gap Percentage |
|---|---|---|---|---|
| S8 | 62% | 22% | 61% | 24% |
| S3 (T) | 40% | | 37% | |
| U3 | 27% | 1% | 29% | -7% |
| U1 (T) | 26% | | 36% | |
| R2 (T) | 39% | 23% | 29% | 6% |
| R4* | 16% | | 23% | |

*Note*. * There was a reversal of the original achievement gap between R4 and R2 (target school) after redistricting.

For instance, the achievement gap in the students declared proficient between S8 and S3 (target school) grew by two percentage points between 2015-2016 and 2016-2017 with the percentage of students declared proficient in both schools dropping marginally, S8 by one percentage point and S3 by three percentage points. This marginal status quo outcome ran counter to the results for U3 and U1. Here, the achievement gap between U3 and U1 changed from a one percentage point gap with U3 performing better than U1 in 2015-2016 to a gap where U1 (target school) performed seven percentage points better than U3 in 2016-2017. Finally, in the R4-R2 pairing, the percentage of students declared proficient in R2 dropped by ten percentage points while the corresponding percentage of children in R4 grew by seven percentage points. This represents a noteworthy closing of the achievement gap between R2 and R4, although at the expense of the R2 results.

On the surface, these variances may seem to convey a mixed message about teachers' implementations of MTSS. Nevertheless, there are additional factors that may have affected the outcomes of this study. For example, S8 (in which there was a year-to-year decline in percentage of students declared proficient of only one percentage point) is a school that has been implementing MTSS for nearly eight years, and already had systematic processes in place to apply early interventions to struggling readers. Thus, it would be reasonable to expect that S8 would be more successful in addressing student learning issues. Conversely, S3, one of the schools significantly impacted by redistricting (somewhat successfully, as illustrated by a drop of only three percentage points), has been struggling to adjust instruction and behavioral support to meet the more varied needs of the students new to S3.

Also, in the intervention year, U1, which demonstrated the highest TRC proficiency growth (distinct from achievement) in Medium District, a new principal and assistant principal were appointed to the school. The new administrative team focused on student achievement and professional growth in teachers. Additionally, U1 employs two interventionists who also act as instructional coaches for the teachers. Thus, there is considerable support for teachers in terms of the planning and implementation of effective instructional practices. By contrast with the specifically designed situation in U1, while R2 has received similar district level coaching to that received by U1, there is little internal support within that building. The interventionists perform more traditional Title 1 reading specialist duties in that they work, primarily, with at-risk students and lead the school's MTSS team by scheduling meetings and organizing and housing data, but do not work on building teachers' capacity for making appropriate instructional decisions.

**Goal 2: Teachers' Comfort Level with the Use of Data to Drive Instructional Decisions**

The second objective for this study was that, with scaffolding and support, teachers would attain a higher level of confidence in the practice of using data to design instruction targeted at closing gaps in student learning.

**Using the problem-solving process.** During PLC's, teachers were expected to identify their grade level's general Tier 1 problem through an analysis of proficiency levels and growth in proficiency elucidated through the results of the *mCLASS* assessments. This process is formalized in a district-created problem-solving template (Appendix C) that was introduced to all elementary PLCs at the beginning of the 2015-2016 school year. As the district MTSS Coordinator, I met with grade levels at all but one elementary school in 2015-2016 to introduce the template and train teachers on the problem-solving process. The template is currently being

used to varying degrees across Medium District. Figure 20 is an example of the problem-solving process from Grade One at U1 that shows the precise achievement problem identified and the brainstorming that occurred to assist in determining an instructional change to be implemented based on the analysis. The initial problem solving occurs over several PLC sessions, if they are scheduled during grade level planning, or during a day-long strategic planning session.

In Figure 20, the "Identify the Precise Problem Statement" section for BOY records teachers' careful analysis of their Nonsense Word Fluency (NWF) data during which they noted that their specific concern was that, while 79% of their students were proficient on the NWF Whole Words Read (WWR) component, there was reason for concern because students were only required to read one whole word at the BOY but the expectation grew to eight whole words at MOY. Nonsense word reading is an essential skill in that it assesses a student's ability to encode simple Consonant-Vowel-Consent (CVC) and Consonant-Consonant-Vowel-Consonant (CCVC) words such as "car" or "star". Nonsense words, as opposed to authentic words, are used to ensure that students are actually using phonics skills to encode and not simply reading words they already know. Additionally, nonsense word encoding leads to more advanced phonics skills such as decoding and encoding multisyllabic words. For example, the word "basket" contains two nonsense words that may appear on an NWF assessment: "bas" and "ket." Theoretically, if a child can encode the syllables, he or she is more likely to read the entire word, "basket," correctly.

Continuing to deconstruct Figure 20, during the discussion, the team remembered that, in the prior year, 80% of students were not proficient on this measure because teachers had not anticipated the large growth expectation and had not adjusted their instruction accordingly prior

**Identify the Precise Problem Statement:**

| |
|---|
| **BOY** 79% of students were proficient on the NWF/WWR; however, they must read 8 WWR at the MOY and over 1/2 of students had 4 words or less |

**Develop Hypotheses (Why is the Problem occurring?)**

| Instruction: | Curriculum: | Environment: |
|---|---|---|
| **BOY**<br>• Not enough application of the short vowel sounds in words<br>• **Not enough instruction on blending**<br>• Too much emphasis on letter/sound (didn't move to blending early enough. | **BOY**<br>• lack of scope and sequencing for foundational standards<br>• **lack of materials** | **BOY** |
| **RIOT: Review, Interview, Observe, Test your hypotheses:**<br>• **Current grade level reviews and interviews previous grade level teachers to confirm hypotheses in the above categories. (Only at the beginning of the year)**<br>• **Highlight the hypotheses for areas of primary focus.**<br>• **Continue to next section to brainstorm solutions.** | | |
| **Instructional Solution Ideas:**<br>**BOY**<br>Model blending words during writing time<br>Sorting activities<br>instruction on CVC patterns<br>building fluency with blending<br>Shared reading of poetry- whole part whole instruction lifting CVC words and creating word families (real and nonsense)<br>CVC word families with T-chart sort (small group) | **Curriculum Solution Ideas:**<br>**BOY**<br>StarFall<br>Phonics instruction (Fountas and Pinnell)<br>Poetry | **Environment Solution Ideas:**<br>**BOY** |

*Figure 20.* Example of a well-documented problem-solving template from Grade One at U1.

to the MOY assessment. Therefore, the team opted to address blending CVC and CCVC words earlier in the year. After identifying their problem, the team members developed an hypothesis by brainstorming possible instructional, curricular, and environment (ICE) concerns that occurred prior to the BOY assessment. In this example, they narrowed it down to "not enough instruction on blending," so they went on to brainstorm instructional solutions for that problem. Figure 21 is the section of the problem-solving template that is used to identify instructional practices that were developed specifically to address the identified need, set goals for student progress, and identify how progress will be monitored.

After discussion of the data and effective instructional practices, the team concluded that adding shared reading to their literacy block for the whole class would be the most effective strategy. Specifically, teachers decided to (a) use poetry and teacher-made sentences to highlight CVC words, and (b) elicit student input to develop lists of words containing the same rhyme as the original word. Additionally, they added a small group component to assist students who struggle with the concept of onset and rime. During small group time, they plan to pre-teach some of the words that will later be introduced to the whole class. Each teacher agreed to incorporate these strategies for a defined number of days per week and length of time per session.

Once the instructional strategies were defined, the team set attainable, but ambitious goals, and identified the progress monitoring measure to be used and the frequency with which it would be applied. In this case, the progress monitoring tool chosen is *mCLASS* NWF WWR and teachers will assess students every ten days. Since the original data analysis did not occur until late October, and the MOY benchmark is scheduled for January, the team chose to review the data on December 2, 2016 and set the goal at seven words per minute on NWF WWR for the

**Discuss and Select Solutions:**

| |
|---|
| **BOY** Shared reading of poetry- whole part whole instruction lifting CVC words and creating word families (real and nonsense)<br>CVC word families with T-chart sort (small group) |

**Develop and Implement Action Plan:** (Use solutions from section above to complete Action Plan below.)

| Who? | What? | Where? | How Often? |
|---|---|---|---|
| **BOY**<br>**The classroom teacher** | **BOY**<br>Shared reading of poetry/teacher made sentences- using whole part whole instruction lifting CVC, CCVC and CVCC words and creating word families (real and nonsense) | **BOY**<br>Whole group during shared reading<br><br>Small group<br>**(needs to be different and more intense, may need to be separate small group other than guided reading, pre-teach onset and rhyme for next weeks' instruction)** | **BOY**<br>2 -3 days a week 10-15 mins<br><br>2-3 days a week 5-8 minutes |

**How will we know students are learning?**

| | |
|---|---|
| **BOY**<br>**Baseline Scores:**79% of students were proficient on the NWF/WWR; however, they must read 8 WWR at the MOY and over 1/2 of students had 4 words or less. | **BOY**<br>**Short Term Goal:** 80% of students will attain 7 WWR in NWF by December 2, 2016<br>**Long Term Goal:** 80% of students will attain 8 WWR in NWF at MOY benchmark. |

**Measurement Strategies**

| | | |
|---|---|---|
| **BOY**<br>**Who:** Classroom Teachers | **BOY**<br>**With What:** Progress Monitoring NWF | **BOY**<br>**How Often:** every 10 days |

*Figure 21*. The section of the problem-solving template that identifies instruction designed to target the identified problem, goal setting, and progress monitoring definition.

Review Meeting # 1 Date: December 2, 2016

| Results:<br>42% of students that were yellow met the goal.<br>(New teacher in one class could not access data) |
|---|

Evaluate Revise Plan

| If less than 80% are proficient... | If 80% or more are proficient... |
|---|---|
| How will we respond if students don't learn?<br>Change intensity of strategy or develop a new strategy | How will we respond when students already learned?<br>Develop a strategy for improving the TRC |

| Next Steps:<br>In small groups or one-on-one, have students build words by matching a consonant onset and a VC rime. Then write the word on a chart.<br>(Make word, say word, write it, sort it) |
|---|

*Figure 22.* Portion of the problem-solving template illustrating the progress monitoring results and the instructional decisions made based on those results.

short term goal, and eight words per minute at MOY. Figure 22 shows the student performance results and the decision making process that followed.

At the date of the review meeting, only 42% of the students who were assessed had reached the short term goal of reading seven nonsense words per minute. As a result, the team decided to intensify their small group instruction, sometimes even moving to one-on-one instruction, in an effort to maximize the percent of student proficient at the MOY benchmark. During the small group time, teachers decided to use explicit instruction during which students would make a word, say the word, write the word, and then sort the words into rhyming patterns.

After the MOY benchmark assessments, 84% of first graders at U1 met the proficiency expectation by reading at least eight nonsense words per minute. At the district level, only 77% of students met the MOY expectations for NWF WWR. As one of the two schools in Medium District identified as "low performing" by the state, attaining an academic achievement level above the district's average is noteworthy.

By comparison, Medium District's other school identified as low performing, R2, did not complete their problem-solving template to the same level of fidelity as the U1 example. The first grade team at R2 chose to use the problem-solving process to address concerns with their students' BOY TRC scores (59% of their students were proficient, 20% were reading below grade level, and 21% were far below grade level). Figure 23 shows the results of their brainstorming and their subsequent development of an hypothesis.

An analysis of their completion of the document shows that the teachers believed that instruction of kindergarten sight words out of context have led to students not recognizing the words when they are found in text. However, when brainstorming solutions to that problem, the team suggested phonemic awareness instruction (Michael Heggerty and mneuphonics), phonics

**Develop Hypotheses (Why is the Problem occurring?)**

| **Instruction:**<br><br>**BOY--** Students can read sight words in isolation but when they see sight words in a sentence, they don't recognize them.<br>*It would be helpful if Kindergarten can work on reading high frequency words in phrases and context instead of in insolation.*<br><br>**Review Mneuphonics DAILY** | **Curriculum:**<br>**BOY-** lack of common resources | **Environment:**<br>**BOY-** none<br><br>**MOY-** *(discuss title 1 missing Tuesdays and assistants)* |
|---|---|---|
| **RIOT: Review, Interview, Observe, Test your hypotheses:**<br>• **Current grade level reviews and interviews previous grade level teachers to confirm hypotheses in the above categories. (Only at the beginning of the year)**<br>• **Highlight the hypotheses for areas of primary focus.**<br>• **Continue to next section to brainstorm solutions.** | | |
| **Instructional Solution Ideas:**<br>**BOY--**Review actions that correspond to Mneuphonics<br>Phonics games-Around the World, Stand and Say,<br>Michael Haggerty at least 3 times a week.<br>Secret Stories<br>Common Spelling List among first grade<br>FRY Phrases | **Curriculum Solution Ideas:**<br>**BOY-** Look for sight word resources that title 1 can purchase to help provide a common baseline for all teachers. | **Environment Solution Ideas:**<br>**BOY** -continue using whole and small group instruction. |

*Figure 23.* Documentation that occurred through the process of brainstorming ICE to determine an instructional solution to the grade level's identified problem.

instruction (phonics games and spelling lists), and sight word practice outside of text (Frye phrases). The teachers' ideas for instructional solutions to their student's difficulty with recognizing sight words in context were not aligned to the problem they identified and, subsequently, the action plan they developed was also not aligned to the students' instructional needs. Figure 24 shows the action step the first grade teachers at R2 developed to remediate the students' deficits in reading proficiency.

In addition, unlike the previous example, there are no specific instructional practices or strategies identified to accelerate student reading ability in the "what" column. The team did not identify any resources they will use to "incorporate high frequency words or phrases," or specify where they will incorporate them. Finally, the teachers did not differentiate between the instruction that will occur in whole groups and the instruction that will occur in small groups. They did, however, set goals for reading achievement growth. The short term goal for students who were not reading at grade level expectation (level D) was that their reading level would grow by two to three levels by December 13, 2016 (presumably the date that was set to review short term goals). However, there is no evidence of a data review meeting any time before the MOY assessment (the date for the long term goal). Without a short term goal analysis, teachers had no way information with which to make any necessary changes to their instructional practices.

The state's Department of Public Instruction's (DPI) MOY expectation for all first grade students is that they will accurately read and answer questions at level G. The long term goal for MOY listed by the team members is as follows: Students who begin first grade reading at level C (the expectation for MOY kindergarten) are expected to read at level G, and students who score at Reading Behaviors (RB, BOY kindergarten) are expected to successfully read at level E. Table

**Develop and Implement Action Plan:** (Use solutions from section above to complete Action Plan below.)

| Who? | What? | Where? | How Often? |
|---|---|---|---|
| **BOY-** Classroom teacher | **BOY-** incorporate high frequency words and phrases | **BOY-** in whole group and small group | **BOY-** 15 minutes 3 times a week. |

*Figure 24.* An example of an action plan developed to increase reading proficiency in first grade at R2.

5 shows disaggregated MOY TRC data for first grade students at R2. These data show that, of the students targeted by the grade level's problem-solving process, only 23% of them met the goal. Of the students beginning the year at the RB level, 36% were able to reach level E, 25% of students who started the year reading at level B were able to read at level F, and only 13% of students who read at level C at BOY were able to read a level G book at MOY.

When teachers at R2 were asked what their instructional plan had been for these students, they were unable to give specific answers, and, instead, listed the components of Balanced Literacy (shared reading, guided reading, read aloud, and independent reading). Additionally, when asked to find their problem-solving template to add to their MOY data and continue the problem-solving process, none of the four teachers was able to locate it.

**Collaboration survey results.** In my study plan, I suggested I would administer a pre-study survey and a post-study survey to assess the level to which teachers feel comfortable working within a PLC. However, during the course of this study, a major district initiative was introduced that required a substantial amount of teacher and administrative time in professional development and practice. Additionally, the district was in the midst of the school accreditation process through AdvancED that required many additional hours of work for district and school administrators and their leadership teams. In an effort to avoid overwhelming school personnel with additional work, I chose to administer only the post-study survey. While the lack of data collected from the proposed pre-test restricts my ability to show change in attitudes over time, the data collected from the post-study survey contains valuable data nonetheless. The full text of the survey can be found in Appendix D and results of the survey, disaggregated by target and non-target schools, are reported in Appendix E. Notably, teachers from only two target schools

Table 5

*Disaggregated MOY TRC Data for First Grade Students at R2 Who Demonstrated Below-Grade Level Reading Skills at BOY*

| BOY TRC Level | Number of Students | Percentage Reaching Goal |
|---|---|---|
| Reading Behaviors (RB) | 11 | 36% |
| B | 4 | 25% |
| C | 15 | 13% |
| All Students Below Grade level | 30 | 23% |

(U1 and R2) chose to participate in the survey, thus, "target schools" refers only to those two schools.

***Item 1.*** The survey consisted of ten items that requested teachers to use a Likert Scale to indicate their level of agreement with each item statement. Several items in the survey were directly related to Goal 2 (Items 1, 2, and 8). For example, the first item invited teachers to respond to the statement, "Teachers feel comfortable discussing each other's data." Figure 25 is a comparison of the responses received from the 66 respondents from the target schools, as compared to the responses of the 108 teachers from the non-target schools. The y-axis, shows the percentage of teachers responding in each of the Likert categories (strongly agree, agree, neither agree nor disagree, disagree, and strongly disagree).

The results show that comfort levels related to sharing of individual teacher's data are similar, with 80% of teachers in the target schools either strongly agreeing or agreeing with the statement compared to 87% of teachers in the non-target schools. The largest discrepancy in responses was in the "strongly agree" category in which 13% more teachers in the non-target schools chose that option than those in the target schools, perhaps indicating a more non-threatening use of data in higher performing schools.

Early in the school year, several teachers at the schools identified as "low performing" (U1 and R2) asked if they were the only schools being asked to use the problem-solving template. This question was not asked at any other school and seemed to signify sensitivity to the schools' student low achievement status and a feeling of being "singled out." The teachers in the lower performing schools seemed comforted to learn that all schools are expected to meet the same expectation. In both categories of schools, there were one or two data analysis during PLCs. Occasionally, however, this caused rifts among teammates. For example, one teacher who

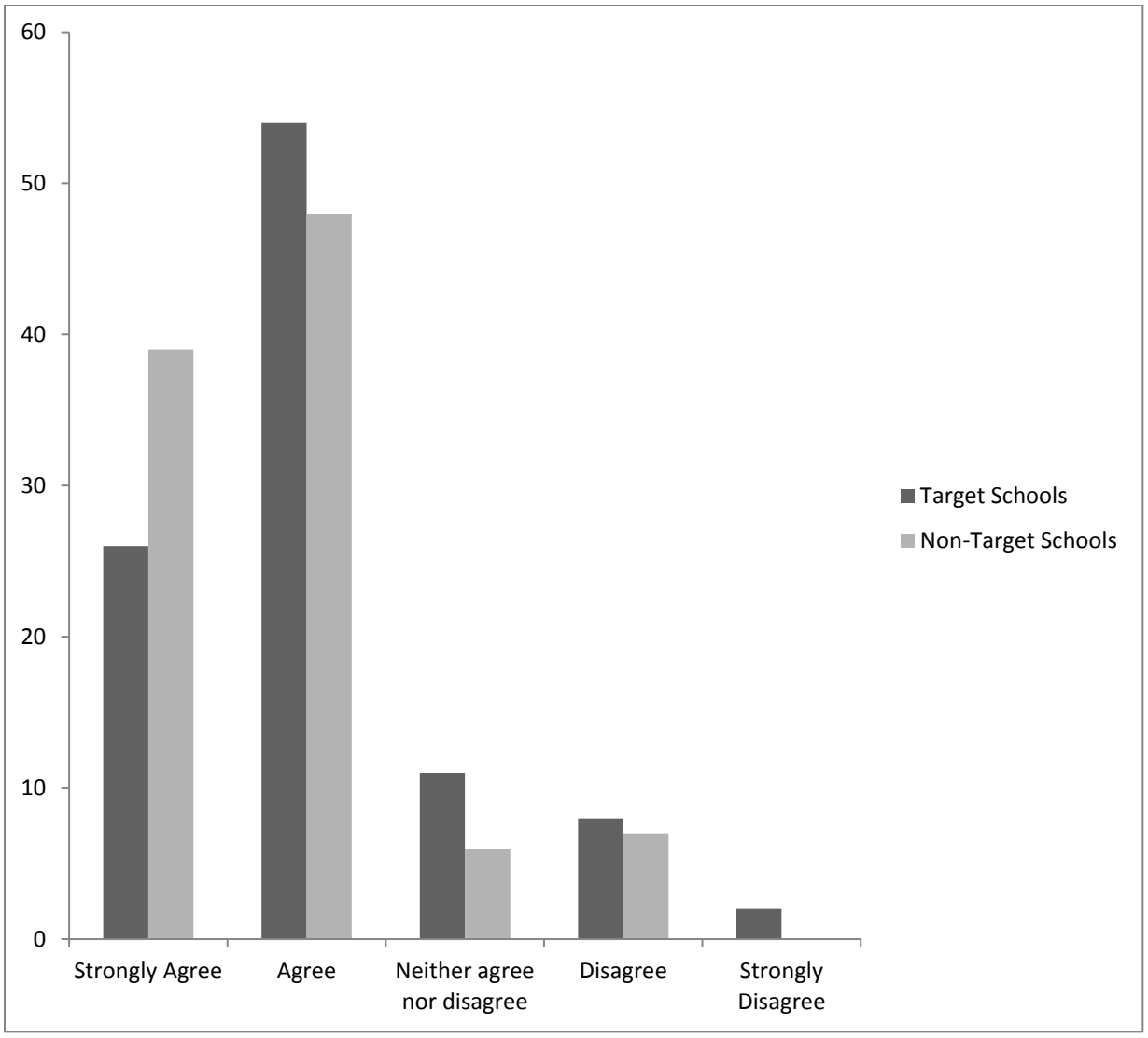



*Figure 25.* Graph comparing responses of teachers at target schools and at non-target schools in each Likert category to the statement "Teachers feel comfortable discussing each other's data."

volunteered her data as an example experienced negative repercussions. During the analysis of her data, it became apparent that her choices for instruction had more effectively promoted student success than had those of the other three teachers. After the team's planning period ended, two teachers left the room quietly speaking to each other and the other two left separately. At the end of the day, the teacher who had offered her data for discussion returned to the planning room in tears and asked that we not use her data in the future because the other teachers were angry with her. She went on to say that, as a new teacher at the school, she already felt like an outsider and did not want to do anything to make the situation worse.

***Item 8.*** Responses to the statement, "Spending time discussing data and instruction with my teammates is time well spent," were interesting in two categories: strongly agree and disagree. Figure 26 shows that 42% of teachers in the "non-target schools" group strongly agreed with the statement, while only 30% of the teachers in the "target schools" group felt the same. Also of note, 12% of the teachers in the target schools disagreed with the statement and only 2% of teachers in non-target schools disagreed. The discrepancy in responses seems to indicate that teachers in the target schools see less value in using data to inform instruction than do those in the non-target schools.

**Summative conclusion.** Between the two schools highlighted in this section (U1 and R2), the levels of proficiency in the use of the problem-solving template as a guide for making data-based decisions regarding appropriate changes to instruction is evident. One school, U1, completed the template in a precise and systematic manner by succinctly identifying the problem, brainstorming possible causes of that problem and then problem-solving a variety of solutions targeted at remediating the identified problem. On the contrary, R2's problem-solving

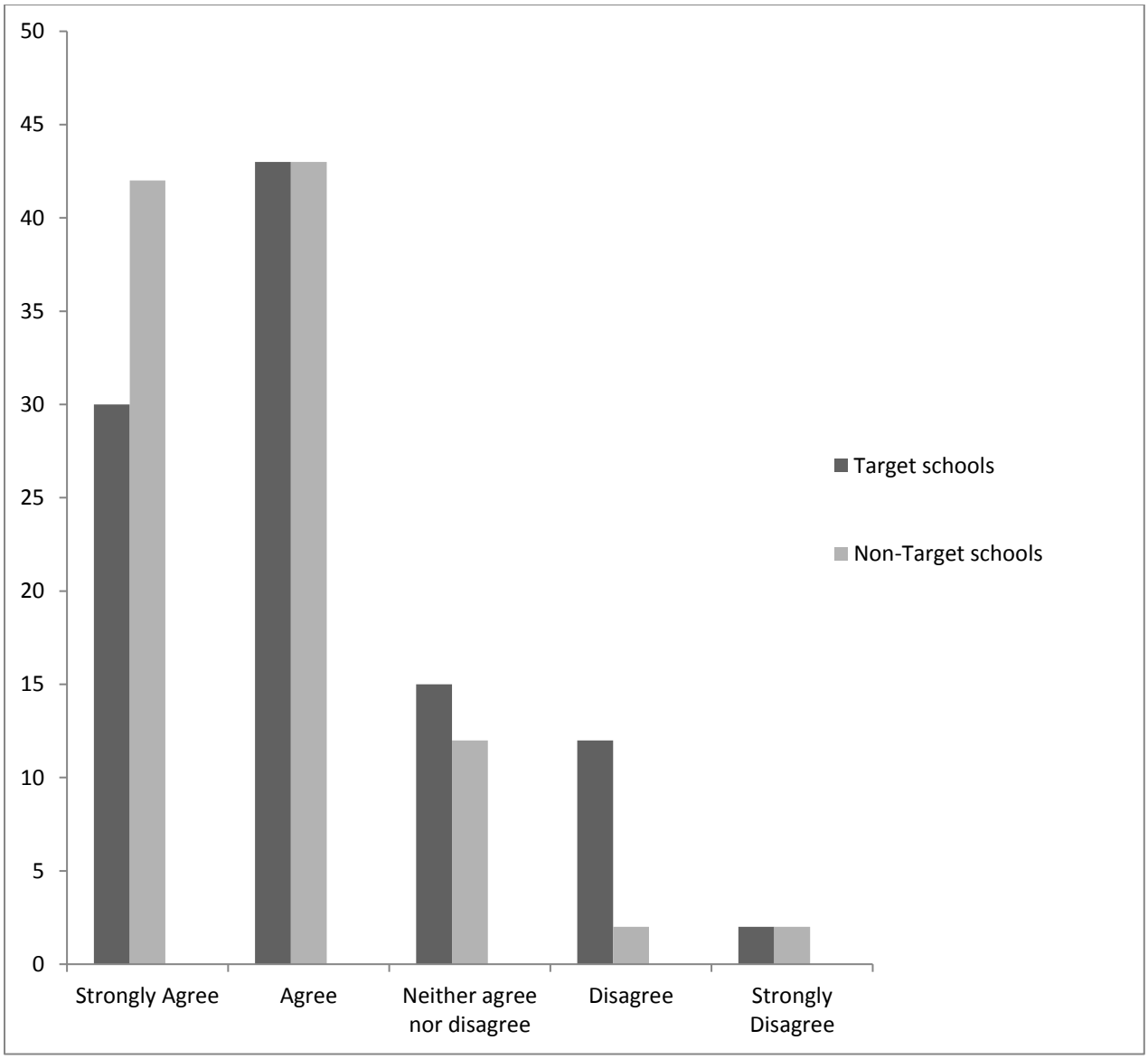



*Figure 26.* Graph comparing responses of teachers at target schools and non-target schools in each Likert category to the statement "Spending time discussing data and instruction with my teammates is time well spent."

process, as documented on the template, demonstrated a lack of focus. The team identified one instructional problem and problem-solved for a different instructional problem. Then, when recording their proposed action step, they wrote a vague statement that did not define expectations for the frequency or duration of the intervention.

Table 6 is a comparison of MOY TRC proficiency over the past two school years at each of the schools discussed in this section and the school with which they were paired. Proficiency in TRCs at U1 not only grew by 18% more than those at R2, but they also grew at higher rate than those at U3 (the school with which they were paired). Conversely, TRC scores at R2 fell by 10%, while those at its paired school (R4) grew by 7%. These results indicate that, when completed thoughtfully and with specificity, using data within a formalized problem-solving process assists teachers in making appropriate changes to their instructional practices. Figure 27 shows the discrepancies between responses by teachers at R2 and U1 to the statement, "The grade level team uses data to make decisions about core instruction." It is interesting to note that, although the teachers at R2 did not complete the problem-solving process in a meaningful way, and those at U1 completed it more thoughtfully, the R2 teachers espouse a strong belief in their use of data to drive their instructional practices, as illustrated by their responses to Item 2 of the survey. These results show that 96% of teachers at R2 agree to some degree that they use data to inform instruction, while only 85% of teachers at U1 indicated the same level of belief.

The incongruity between teacher beliefs about their use of data and the demonstration of their use of data, as illustrated by completion of the problem-solving template, highlights an area for further professional development for the teachers at R2. Furthermore, it illuminates a need to explicitly highlight the connection between the use of data, and careful consideration of its

Table 6

*A Two Year Comparison of Percent Proficient on MOY TRC Data between School Pairings*

| School | 2015-2016 | 2016-2017 | Change |
|---|---|---|---|
| U1 (T) | 26% | 34% | 8% |
| U3 | 27% | 29% | 2% |
| R2 (T) | 39% | 29% | -10% |
| R4 | 16% | 23% | 7% |

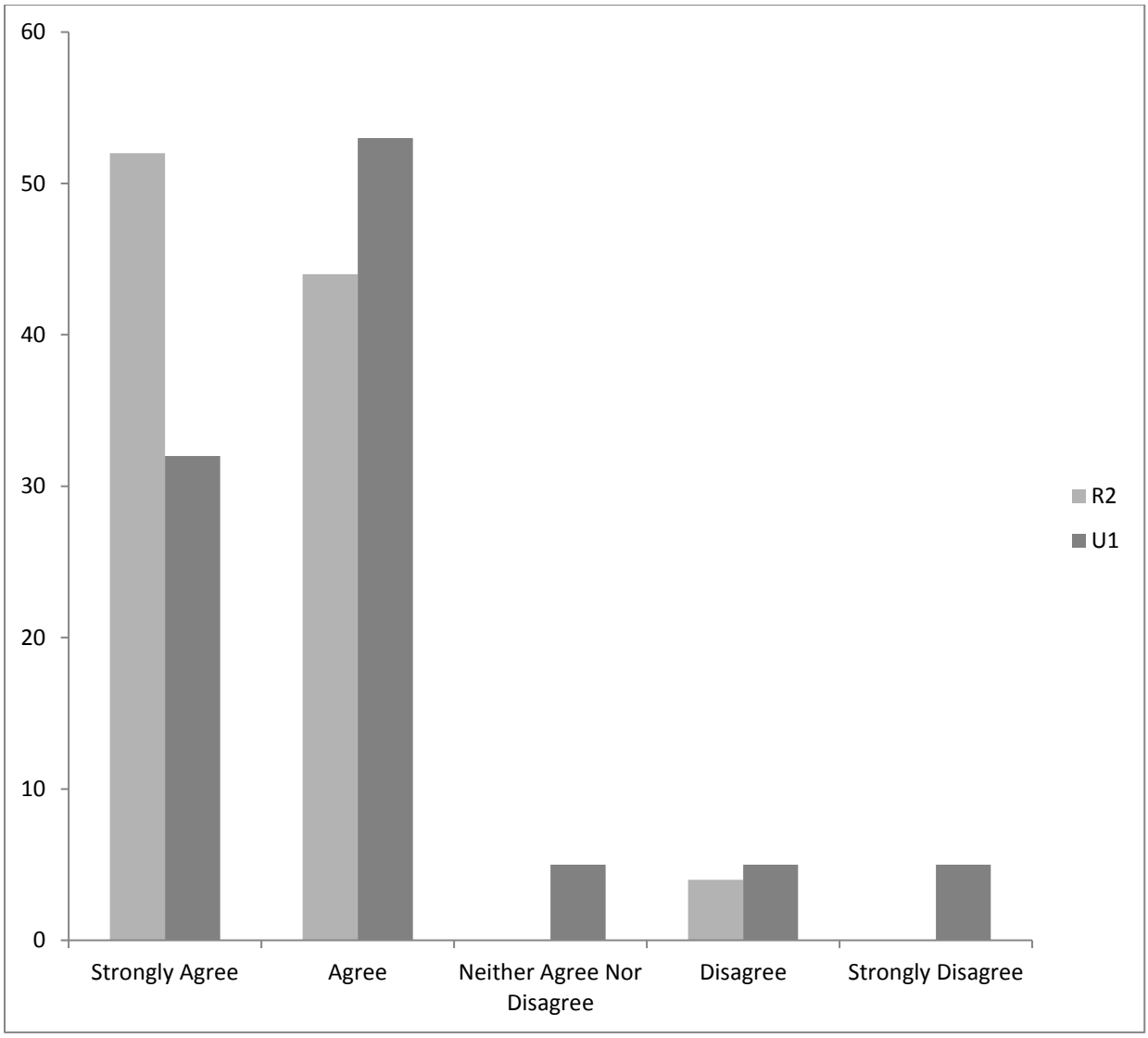



*Figure 27.* Comparison of responses between R2 and U1 to the statement, "The grade level uses data to make decisions about core instruction."

implication, to the teachers at U1 as a way to help them connect their use of data with student performance results.

As indicated by other survey results and the negative experience of the teacher whose use of her data upset her teammates, a barrier to the effective use of data to make instructional decisions is that teachers in the target schools continue to feel less comfortable analyzing each other's data in the PLC environment than their counterparts in other schools. Additionally, while many of the teachers at the target schools agree that it is important to make data-driven decisions about their instructional practices, a much smaller percentage strongly agree with that statement, and a larger percentage disagree with it, as compared to teachers in other schools. The greater number of teachers in higher performing schools who recognize the value in using data to make decisions may contribute to the proficiency levels their students display.

**Goal 3: Teachers will Espouse a Belief in the Value of Working within PLCs**

The third objective of this study was that teachers would increase their belief in the value of PLCs as a meeting structure that encourages creativity and innovation and leads to professional growth of all participants.

Sources for data collection related to this goal included field notes taken during grade level PLC meetings, survey responses, and evidence gathered from interviews conducted with teachers at target schools. The interview questions can be found in Appendix C. The original design of this study indicated the use of focus groups as opposed to individual interviews; however, participants voiced concern about discussing this topic in front of their peers. While none of the participants explained their reasons for preferring to meet individually for interviews, the reluctance to engage in discussions in a focus group environment is evidence that PLCs havenot developed to a point that teachers feel comfortable voicing opinions that may differ from

those of other staff members. Further observation at U1 revealed that the lack of trust among teachers extends beyond the PLCs and actually permeates the culture of the school. I witnessed an example of this when I met with one of the teachers for an interview after school. The teacher and I were walking toward her classroom when one of her teammates, who was also in the hallway, saw us and asked me, "What brings you to this neck of the woods?" I responded that I was just visiting and she continued to ask questions regarding the purpose of my visit. After the interview was complete, I walked back out into the hall, this time by myself, and the same teacher repeated her original question. I reiterated that I was visiting but she did not seem satisfied and only stopped asking questions after I stepped into her classroom and complimented her students' work samples.

**Survey Responses**

Seven of the ten items on the survey were related to Goal 3. These items were as follows: Item 3- I depend on my teammates to share instructional ideas, Item 4- I prefer to make my instructional decisions about my class by myself, Item 5- I believe that my teammates have innovative ideas, Item 6- My teammates listen to my ideas, Item 7- I feel like a valued member of a team, Item 9- I utilize the ideas of my teammates when designing lesson plans, and Item 10- I believe that working in PLCs has enhanced my students' achievement.

Table 7 shows the differences in the responses from the target schools and non-target schools to the statement, "I depend on my teammates to share instructional ideas." From these data, it is evident that teachers at both target and non-target schools depend on their colleagues for instructional suggestions, but the teachers at the non-target schools feel more strongly about the interdependence. For example, 32% in target schools and 46% in non-target schools strongly agree with the statement. Overall, 17% more of the teachers at the non-target schools expressed

Table 7

*Comparison of Responses of Teachers at Target Schools and Non-Target Schools to Item 3*

| Response | Target School | Non-Target Schools | Level of Agreement | Target Schools | Non-Target Schools |
|---|---|---|---|---|---|
| Strongly Agree | 32% | 46% | Some level of agreement | 71% | 86% |
| Agree | 39% | 40% | | | |
| Neither Agree nor Disagree | 17% | 10% | Non-committal | 17% | 10% |
| Disagree | 8% | 3% | Some level of disagreement | 13% | 4% |
| Strongly Disagree | 5% | 1% | | | |

some level of agreement with the statement than did the teachers at the target schools. Arguably even more telling, 9% more teachers at the target schools expressed some level of disagreement with the statement. In combination, these results indicate a lower level of collegial interdependence at the target schools than at the non-target schools. Also notable in these results is that 7% more teachers at the target schools than at the non-target schools are non-committal regarding the statement, thus raising the possibility of their shifting to agreement over time as PLCs become more embedded in the culture of their schools.

Interestingly, although teachers at the target schools were less likely to depend on their teammates instructional ideas (as illustrated in Table 7), they continued to use them in their lesson plans. Figure 28 is a comparison of responses to Item 3 and Item 9 on the survey. While only 71% of teachers at the target schools agreed that they depended on their colleagues for instructional ideas, 86% of them actually reported they included other teachers' ideas in their lesson plans. Additionally, 13% of teachers disagreed that they depended on their teammates for instructional ideas, yet none claimed that he or she did not use the ideas of his or her teammates in designing lesson plans.

One explanation for this dichotomy may be that teachers do not particularly depend on each other for ideas, but when one of their colleagues describes an instructional practice that is successful in their classroom, others are willing to try it. On this point, in interviewing Teacher 1, further information came was elucidated. When asked if she felt that the practice of analyzing data had impacted student performance, she responded, "I think that the analysis of the data had the *opportunity* to improve student performance. I don't honestly feel like the conversations carried over into classroom instruction as well as it could have." Teacher 1 provides supplemental instruction for at-risk students, and also acts as an instructional coach forteachers at

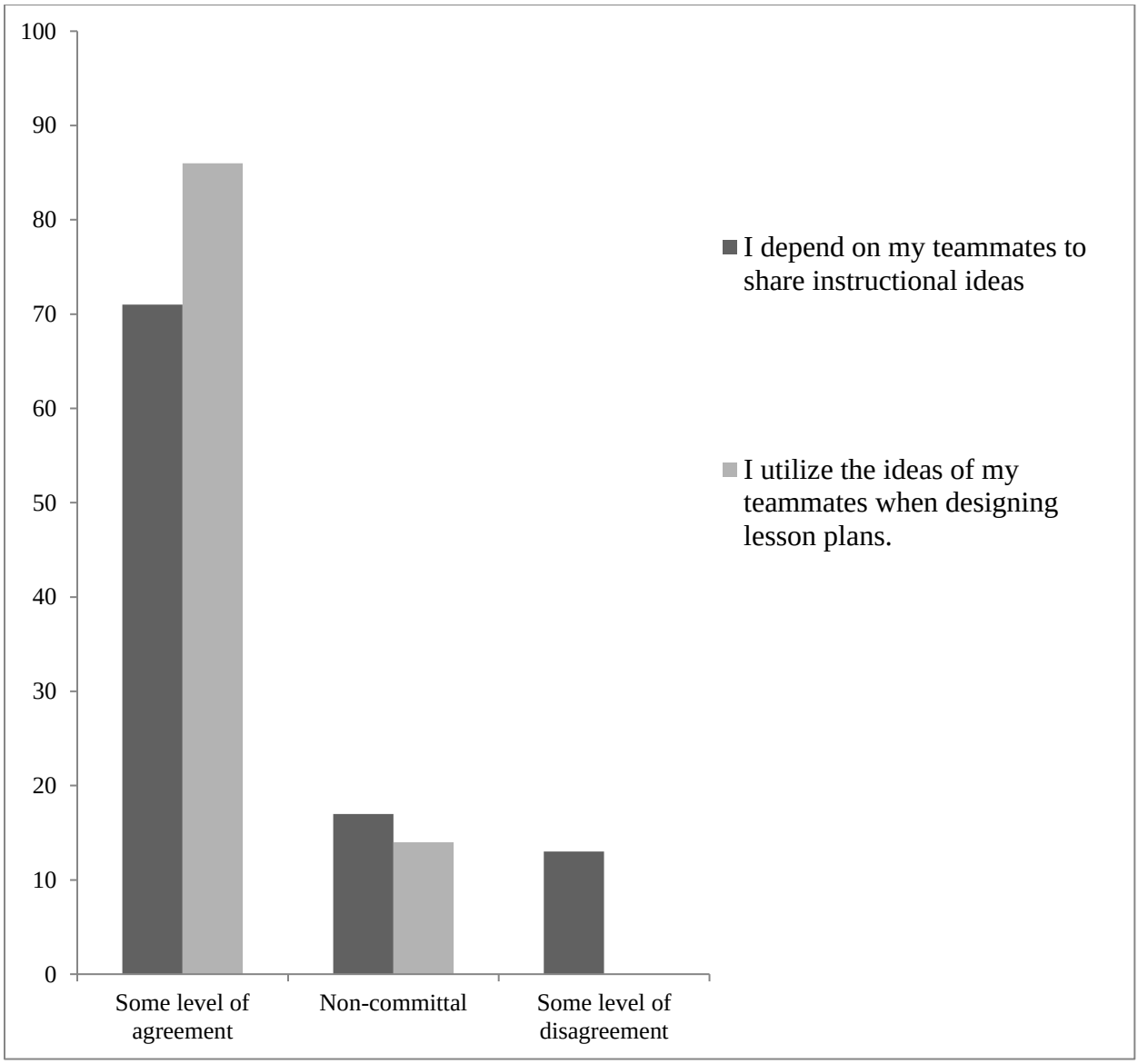



*Figure 28.* Comparison of responses to Items 3 and 9 by teachers in the target schools.

several grade levels at one of the target schools. In the latter role, she facilitates lesson planning and conducts peer observations in classrooms, and, at one of my visits at her school, she mentioned some concerns that had arisen. During classroom observations, she had noted that there was marginal alignment between what was written in lesson plans, and what was being taught in the classroom, and she surmised that teachers were writing common lesson plans out of compliance with administrative expectations but then going into their classrooms and continuing to use the same instructional practices they have used for many years.

Although Teacher 1 was frustrated by her experience, it is possible that the teachers are currently progressing through a continuum of the development of a new skill. Following that line of reasoning, the development of appropriately designed lesson plans is the first step toward improving instruction. In the same way, a rudimentary analysis of data is the cornerstone to developing a system of data analysis that leads to instructional practices designed to target gaps in student learning. In each of the interviews, teachers espoused a belief that analyzing data has been beneficial to their understanding of learning gaps, and all expressed a desire to continue analyzing data with support from school or district level personnel. During one PLC discussion, team members animatedly expressed their beliefs regarding vocabulary instruction. Two teachers were using a systematic approach available for purchase. Another had designed her own system and felt strongly about continuing to use that approach. The fourth teacher was new, and sat quietly and listened to the others. At the end of the planning period, everyone left the room and it seemed no one had heard anyone else's opinions. The next week, one of the teachers who had passionately pled her case for using the purchased materials asked if she could say something before we started. With tears in her eyes, she thanked her teammates for the prior week's discussion, told them she had new understanding from each of them, and went on to explain the

lessons she had learned. A short discussion ensued, and then all were ready to begin the day's task. Although this is only one incident, it is indicative of this team's growth in the value they place on collaboration and the ideas of team members.

Further evidence of the paradigm shift occurring at the target schools can be seen in their responses to the final survey item, "I believe that working in PLCs has enhanced my students' achievement." Figure 29 compares the responses to Item 10 at target and non-target schools. Teachers at the non-target schools exhibited a markedly stronger belief that working within a PLC leads to improved student achievement. Also notable in these data are the percentage of teachers at the target schools who have not yet formed an opinion as to the efficacy of working within PLCs (neither agree nor disagree; 32% of respondents). Teachers' level of indecision regarding the potential for the work accomplished within PLCs to change student performance was corroborated by responses I received during interviews with teachers at the target schools. Each of the four teachers mentioned that he or she had an increased ability to analyze data and recognize student weaknesses. For example, Teacher 3 mentioned that, even without further support from district level personnel, she would continue to analyze her data because, "it finds the weaknesses in the majority of students and kind of gives you a plan on how to attack that for the rest of them." Similarly, Teacher 4's response to the same inquiry was "I really kind of enjoy looking at their data and going into that and seeing specifically where the problems are." However, the responses of several of the teachers also highlighted misunderstandings about the purpose of the data analysis, and suggested a continued dependence on assistance with developing or identifying appropriate instructional practices to address the deficits identified through data analysis. This continued dependence was evident when Teacher 2 said, "it's almost like we need somebody to analyze the data and then give us the plan."

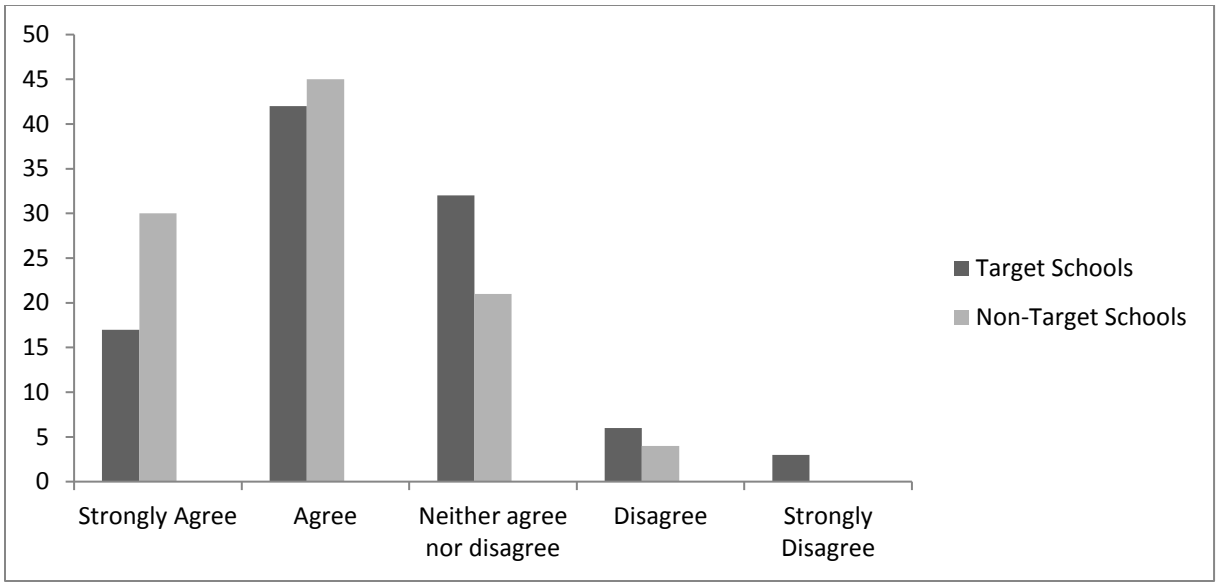



*Figure 29.* Comparison of responses from teachers at Target and Non-Target schools to Item 10 of the Collaboration Survey.

# CHAPTER 5: SIGNIFICANCE AND REFLECTION

I elected to study the deficits in educational attainment within Medium District for my dissertation because I had come to consider them an affront to my concept of equality of educational outcomes. The major indicator of those deficits was an achievement gap in student's reading ability between schools with similar levels of students living in poverty, as defined by the percentage of children receiving free or reduced lunch. However, the crux of the problem as I perceived it, lay not just in the numbers (percentage of students deemed proficient in reading), but in the fact that students attending certain schools were not being exposed to the same level of educational opportunity as students in comparable schools in the district. Based on the work of Clay (1987), Fuchs and Fuchs (2006), Jones et al. (2012), and Vellutino and Scanlon (1996), I planned to remediate this problem through the implementation of a Multi-Tiered System of Support (MTSS) framework designed to meet the academic and behavioral needs of all students. My study also proposed to raise teachers' comfort level with using data to inform instruction, and to increase the interdependence of grade level teachers through the development of PLCs (DuFour, et al. 2005).

As described at length in the Data Collection and Analysis section of my study, each of the goals was reached to some extent, but none was altogether achieved. While initially disappointed with these results, I was also conflicted because during PLCs, I noticed a marked shift in teachers' attitudes about analyzing data, collaborating with colleagues, and adopting new instructional practices based on the data analysis. I was sure that teachers had grown in their understanding of (and belief in) MTSS as a framework to improve student achievement. However, the goals I set at the outset of this study, and the measurement used to assess those goals, did not reflect that growth. The dichotomy between the results and my experience led me

to search for factors that influenced the mixed results and to return to an early statement in this study that I may have unwisely minimized. I stated that "The fact that the student achievement gap has resisted the efforts to eradicate it for the past two years is a cause of concern for what is essentially a short-term action research project." This encapsulates the reasons I believe the outcome of this study were not wholly successful. Although a one year study could begin to set change in motion, the complexity of the problem requires a systematic and sustained effort.

In reflecting on the mixed results of my work, my attention was drawn to the work of Fixsen, Naoom, Blase, Friedman, and Wallace (2005) on implementation science. This field of study is based on the concept that all research studies have two types of outcomes: implementation outcomes and effectiveness outcomes. Implementation outcomes articulate the extent to which the implementing community is executing the practice correctly, while effectiveness outcomes measure the extent to which an evidence-based practice has changed outcomes. Fixsen et al. (2005) state, "Only when effective practices and programs are fully implemented should we expect positive outcomes" (p.4). Furthermore, the implementation science approach focuses on crucial factors required for successful implementation of new programs, and identifies roadblocks to implementation that must be overcome to reach full implementation of any program.

## An Application of Implementation Science

A concrete example of implementation research in practice is the system with which the North Carolina Department of Public Instruction (DPI) is introducing the state's new English Language Arts (ELA) standards. The standards were revised by committee in October, 2016, and are scheduled for deployment beginning August, 2017. In the late fall of 2016, a team of key DPI leaders, consisting of the Chief Academic Officer, the Director of K-12 Curriculum and

Technology, and the Director of Integrated Academic and Behavior Systems collaborated to develop a deployment plan that included a series of four regional trainings for district level curriculum teams. Each meeting, as implementation research suggests, was carefully planned to build the capacity of district leaders to effectively introduce and train teachers to implement the new standards. A key component to implementation science is gaining stakeholder involvement. According to Fixsen et al. (2005), this part of the process involves identifying and engaging the community in which the new program or strategy will be introduced.

At the first meeting, the district teams spent several hours analyzing the new standards, and then were asked to give feedback regarding the changes and the format. This practice allowed the participants to ask questions, voice concerns, and become familiar with the content of the standards, thus allowing each district team to gain a deep understanding of the standards that led to stakeholder support for the changes.

The purpose of the second meeting was to identify staff members from an array of grade levels, schools, and regions of the district who would be most likely to act as early implementers. Again, this meeting was designed intentionally to engage the community in the positive purpose of developing a diverse district deployment team with the capacity to champion the new standards across grade and school levels and regions.

According to Fixsen et al. (2005), in implementation science, the promotion of positive impressions of an innovation at its inception is vital to the successful adoption of that innovation. Therefore, the focus of the third meeting was to identify the characteristics of the ultimate presenter of the new standards. DPI staff stressed that we were not to identify a presenter by name, but instead, identify the qualities we believed to be critical for the person who would lay the foundation of implementation. By so doing, the task would not necessarily be assigned to the

person who held a particular position at the district (e.g., ELA director or Professional Development Coordinator), but instead, the person would be selected as a consequence of possessing the desired characteristics.

A tenet of implementation science is that implementers develop stronger support for a new initiative when they believe there is a pressing need for change (Fixsen et al., 2005). Therefore, during the third meeting, teams were also asked to identify the drivers and restrainers for implementing new standards. The drivers were used to develop a "compelling why" for implementation (i.e., how will it help students, how will it help teachers). Once the purpose was identified, teams used the list of restrainers to develop strategies to overcome the potential problems. A finding in implementation science research is that planning for barriers to implementation alleviates the negative effects of those barriers.

At the fourth and final meeting, district teams listed the structures currently in place that were supportive of the implementation of the new standards. This strategy is recommended by implementation science research because it enables the community to "delineate how the innovation can contribute with respect to the larger agenda" (Fixsen et al., 2005, p. 9), and minimizes perceptions that the community members are being asked to implement a multitude of disjointed initiatives. The remainder of the fourth meeting day was spent developing a strategic deployment plan and creating a Gantt chart as a visual representation of the plan.

The state roll out of MTSS was also developed using the principles of implementation science, but, when originally delivered at the district and regional level, the connection between implementation science and the phases of deployment was not explicitly highlighted. Two years later, as DPI prepares for the introduction of the new state ELA standards, it seems that best

practices espoused by implementation science research are closely aligned to the deployment of DPI's plan.

## Looking Through the Lens of Implementation Science

The design of my study emphasized my role as the MTSS coordinator for the district, and, in accord with the imperative to address a Problem of Practice, was planned to help meet the expectations of state MTSS policies that filtered down to the district for implementation. This top down approach neglected to consider the readiness of teachers and school leaders to implement the framework. Bertram, Blase and Fixsen (2014) contend that "Implementation is not an event but a process of carefully considered organizational adjustments that unfold over the course of 2-4 years" (p. 479). As such, during the implementation process, the community involved in implementation moves through stages of readiness (Fixsen et al., 2005). Figure 30 is a flow map designed to show these stages of readiness. Each stage of readiness is named, briefly defined and the thinking of people at the particular stage is captured in statements. The statements in quotation marks (found in the first five stages of readiness) were comments made during PLC meetings and documented in field notes. Stages through which team members at most schools moved during the course of my study are marked with an asterisk.

When considered through the lens of implementation science, my study began with school leaders and staff members at different stages. For instance, S5, S6, and S8 (a paired, non-target school) first implemented Response to Instruction (RtI, an early iteration of MTSS) nearly ten years ago. At these schools, teachers already knew the value of using data to inform instructional practices, but they needed to learn the intricacies of the new model. Therefore, they were able to begin implementing MTSS at the "initiation" stage. Having progressed through that stage in the past year, they are currently preparing plans for the "stabilization" stage by

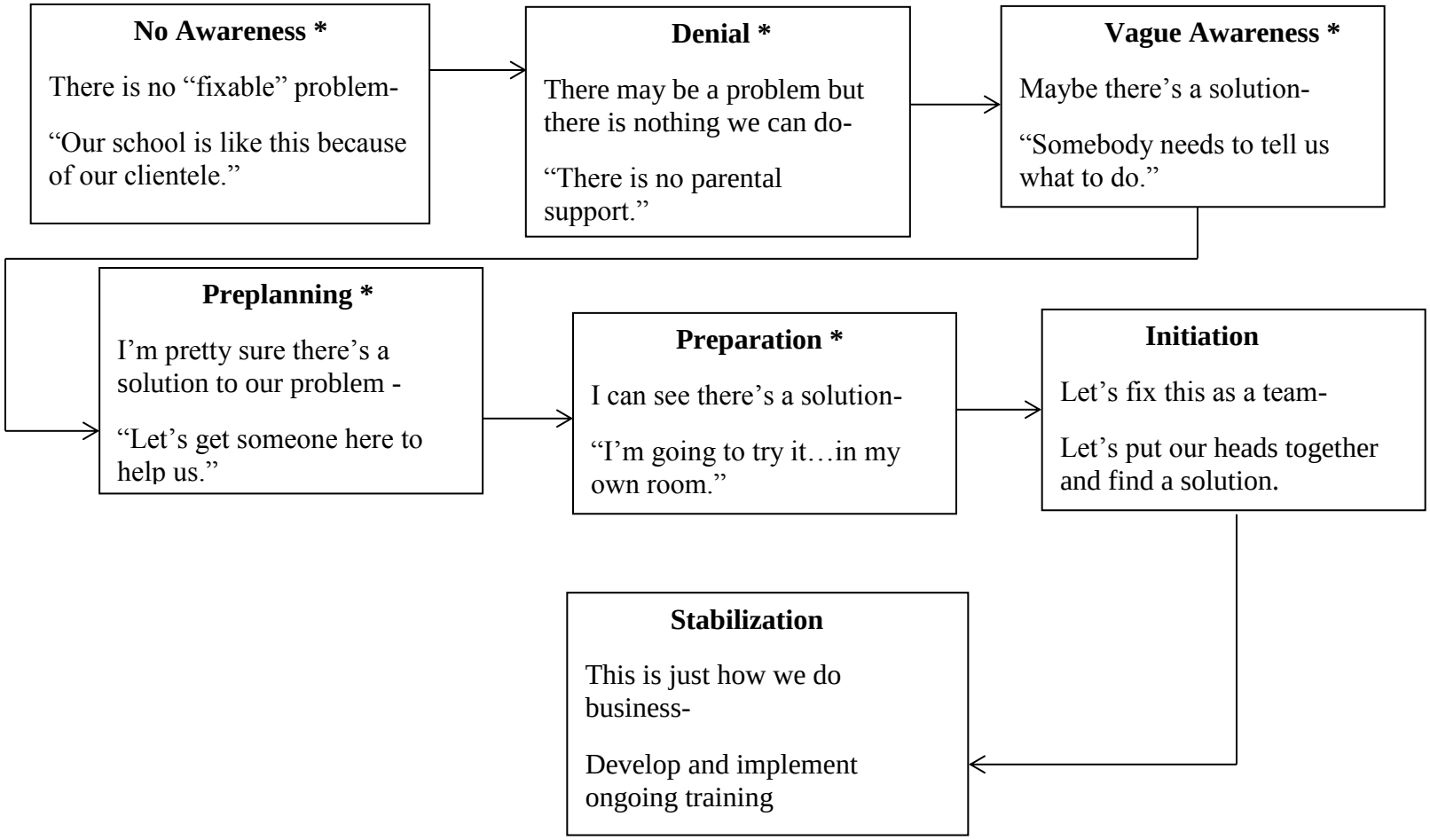



*Figure 30.* Stages of readiness for implementation.

developing a professional development plan to train all new teachers in the system and continue to enhance experienced teachers' understanding of MTSS.

By contrast, at S3 (a target school), teachers recognized that, after redistricting, they received new students who had economic, social, and academic needs different from the majority of their student body. However, they felt helpless to address the unique needs of their newest students, and often referred to them as "our new population." Many teachers and administrators blamed redistricting, and advocated for allowing the children who had been redistricted to return to their former school ("denial" stage). Other teachers admitted there was a problem but were at a loss as to how to fix it ("vague awareness"). They wanted someone to give them specific strategies that would lead to quick fixes. The leadership at S3 believed that MTSS was the solution, and scheduled regular PLC meetings with me during the 2015-2016 school year; however, administrators did not attend the grade level PLC meetings, and minimal progress was made. After a year in which there was little student growth in proficiency, the school administrators remained in the "vague awareness" stage, and began searching for quicker solutions to their problem. At this time, leadership began to emphasize Learning Focused lesson planning as a solution, and replaced the MTSS PLC meetings with PLC meetings focused on developing Learning Focused lesson plans. Interestingly, the proficiency gap between S8 ("stabilization" stage) and S3 ("vague awareness" stage) grew by 2% between MOY 2015-2016 and MOY 2016-2017.

Most schools in Medium District, including R4 (a paired, non-target school), began the 2016-2017 school year with their staff recognizing that there were achievement gaps at their schools and that these gaps highlighted inequities in student learning. They were eager to learnways to help their students increase their reading skills, and believed they could accomplish

the task ("preplanning" stage). However, the administration and instructional support team at R4 expressed an exceptionally strong belief in the implementation of an MTSS framework as a path to school improvement. This confidence in the framework led to the development of a weekly data analysis schedule for PLC meetings (Appendix F) that defined expectations for actions teachers need to take before a particular meeting and materials/data they were expected to bring to that meeting. These clear and concise expectations allowed the staff to move quickly through the "preplanning" and "preparation stages" because all teachers were held to the same guidelines, and they quickly discovered that the data meetings held them accountable for the rate of achievement of their students. At the MOY benchmark analysis PLC, many teachers attributed the school's 7% growth in proficiency to the new processes they put in place.

At the beginning of my study, U1 and R2 (both target schools) were at the "denial" stage of implementation. Teachers at both schools blamed lack of parental support and "lazy" students for their record of poor achievement. Both schools were in their second year in state-identified "low performing" status, and the majority of both staffs displayed defeatist attitudes regarding the chances that their student's performance would change. During a discussion of data, one teacher repeatedly commented that her data always looks the same, no matter what she changes in her classroom. While few teachers seemed willing to express their thoughts verbally, many nodded and seemed to believe this teacher spoke for them.

As the year progressed, and the data began to yield positive results, the teachers slowly began to shift to the "vague awareness" stage and became more attentive when there were discussions targeting instructional practices that may offer remediation of the noted academic deficits. At U1, this process seemed to proceed more quickly than at R2. Upon further reflection, and with a new understanding of implementation science research, I suggest that this expedited

movement through the stages of implementation may be due to the support structures in place at U1. The support framework begins with the principal, appointed to the school in July, 2016, who set expectations for teachers and uses a system of observations and walk-throughs as implementation fidelity checks. While the principal at R2 completes the same processes, there is not as explicit a connection between the expectations and the observations.

Additionally, U1 utilizes their instructional support staff differently than does R2. At U1, while their primary duty is to deliver supplemental instructional support to the schools most at-risk students, they also facilitate instructional planning for selected grade levels two half-days per week (mathematics one half-day and reading the other half-day). Further, the instructional support staff at U1conduct peer observations and maintains progress monitoring data. At R2, instructional support staff are involved in data conversations one day a week and they also provide supplemental instruction for the school's most at-risk students, however they are not involving in lesson planning and do not conduct peer observations. The level of instructional involvement at U1 is supported by implementation science in that "teachers are provided with professional development (training, in-class coaching, and prompt feedback) that leads to proficiency" (Fixsen et al., p. 9). While the staff at both schools was able to progress through the continuum of implementation, R2 advanced to the "preplanning" stage while U1 was able to transition to the "preparation" stage.

As illustrated in Table 8, each school in the original pairings advanced through the stages of implementation at a different rate. The rate of transition can be related to several factors identified within the work of implementation science research and include level of implementation at the beginning of my study, district level support, and in-school support

Table 8

*Comparison of the Progression through Stages of Implementation and TRC Proficiency Growth*

| School | Beginning Stage (February 2016) | Current Stage (February 2017) | TRC Proficiency Growth from MOY 2015-2016 to MOY 2016-2017 |
|---|---|---|---|
| S3 (T) | Vague Awareness | Vague Awareness | -3 |
| S8 | Initiation | Stabilization | -1 |
| R2 (T) | Denial | Preplanning | -10 |
| R4 | Preplanning | Initiation | 7 |
| U1 (T) | Denial | Preparation | 10 |
| U3 | Unknown | Unknown | 2 |

systems. It is notable that the two schools with the highest level of in-school support were able to attain the highest level of growth on TRC proficiency.

Consequently, I believe that the lens of implementation science research not only puts my mixed results in perspective, it also offers a way to adapt and improve the outcomes of my work in the future. My study began under the aim of righting educational inequities exemplified in the three target schools in Medium District. While the results were mixed, I am optimistic about the successes achieved over the course of my study. In addition to successfully closing the achievement gap originally identified, the staff members with whom I collaborated successfully moved through stages of implementation during the duration of my study. Arguably, there is optimism to be found in schools with lower levels of success as well. The identification of barriers to success that I discerned in these schools signifies the prospect for success if those barriers are addressed effectively. I believe that the application of my new found understanding of implementation science will assist me in helping other schools meet with same level of success achieved at U1. And, while my study was developed to address a problem specific to Medium District and was not meant to be generalized, lessons learned in the course of the study may be pertinent in other environments.

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## APPENDIX A: IRB APPROVAL

**EAST CAROLINA UNIVERSITY**
**University & Medical Center Institutional Review Board Office**
4N-70 Brody Medical Sciences Building· Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · **www.ecu.edu/irb**

Notification of Initial Approval: Expedited

| | |
|---|---|
| From: | Social/Behavioral IRB |
| To: | Suzanne Averitt |
| CC: | Robert Reardon |
| Date: | 7/8/2016 |
| Re: | UMCIRB 16-000861<br>Raising Student Achievement |

I am pleased to inform you that your Expedited Application was approved. Approval of the study and any consent form(s) is for the period of 7/7/2016 to 7/6/2017. The research study is eligible for review under expedited category # 6, 7. The Chairperson (or designee) deemed this study no more than minimal risk.

Changes to this approved research may not be initiated without UMCIRB review except when necessary to eliminate an apparent immediate hazard to the participant. All unanticipated problems involving risks to participants and others must be promptly reported to the UMCIRB. The investigator must submit a continuing review/closure application to the UMCIRB prior to the date of study expiration. The Investigator must adhere to all reporting requirements for this study.

Approved consent documents with the IRB approval date stamped on the document should be used to consent participants (consent documents with the IRB approval date stamp are found under the Documents tab in the study workspace).

The approval includes the following items:

| Name | Description |
|---|---|
| Informed Consent Document_SHA.doc | Consent Forms |
| Interview Questions.docx | Interview/Focus Group Scripts/Questions |
| Proposal Statement-S Averitt (1).docx | Study Protocol or Grant Application |
| survey questions.docx | Surveys and Questionnaires |

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

## APPENDIX B: PERMISSION LETTERS

June 22, 2016

Dear Dr. Reardon,

In February, 2016, the North Carolina State Board of Education approved a new policy designating the use of a Multi-Tiered System of Supports (MTSS) as the means for identifying students with Specific Learning Disabilities (SLD). This change in policy requires that, schools will no longer be able to use the discrepancy model to identify students in the category of SLD by the 2020-2021 school year. However, there is a broader purpose for implementing MTSS. According to Amy Jablonski, Director, Integrated Academic and Behavior Systems, "NC MTSS is a multi-tiered framework which promotes school improvement through engaging, research-based academic and behavioral practices. NC MTSS employs a systems approach using data-driven problem-solving to maximize growth for all."

In an effort to prepare Craven County Schools for this paradigm shift, it is imperative that we begin the process of implementation of MTSS using a systematic approach. As a total school improvement approach, MTSS is comprised of six critical components: leadership, data-based problem solving, data evaluation, three-tiered instruction/intervention, building capacity/infrastructure for implementation, and communication and collaboration. The vehicle used to address these components is through grade level professional learning communities (PLCs) working as problem-solving teams. Grade level teams and school level MTSS teams will be trained to use a problem-solving model to analyze data, identify a problem, and develop instructional solutions for all students. Grade level teachers will use multiple data points to identify academic areas of concern and then develop instructional strategies to address the deficiencies. Implementation will begin strategically at the elementary school level and will transition into the middle and high schools successively.

As a part of our total school improvement, I have asked Suzanne Averitt to complete a comprehensive study based on literature reviews and data collection of the comparison schools within Craven County in order to determine whether using a problem-solving approach at the grade levels enhances student learning and increases teachers' beliefs in the value of collaboration.

This study will examine teachers' belief in students' ability to reach academic proficiency as well as teachers' ability to influence student learning. In addition, focus group discussions will be used to determine teachers' belief in the efficacy of collaboration versus individual planning

for students' needs and if they have developed an increased comfort level with using data to inform instruction. In addition to a synthesis of the literature, quantitative and qualitative research will be utilized. Data for this study will be collected by way of questionnaire responses, focus groups, and interviews. It is the expectation that the research from the problem of practice will provide Craven County Schools with data regarding the effectiveness of the collaborative problem-solving approach and its ability to increase student performance.

It is my pleasure to write a letter in support of *Raising Student Achievement Using a Multi-Tiered System of Supports* that will be submitted by Suzanne Averitt to the Educational Leadership Department at East Carolina University.

Sincerely,

Assistant Superintendent of Curriculum and Instruction

Dear Dr. Reardon,

In response to the state's designation of a Multi-Tiered System of Support (MTSS) for identifying students with learning deficits, our school will adopt the MTSS framework for the greater purpose of helping all students to achieve their maximum potential. Previously, our school has utilized an outdated model that focuses on a few individuals who are already in jeopardy of failure.

In order to effectively change our mindsets and see the larger picture, which is about total school improvement, we will need the support of a highly qualified coordinator. We request the assistance of Ms. Suzanne Averitt. Ms. Averitt will help to build capacity of teachers to become problem solving teams who can identify and address performance deficiencies. During this transition from an individual focus to a school-wide improvement model, we will analyze the correlation between teacher effectiveness in collaborative data analysis for systems improvement and the effect on student achievement. Teachers will participate in focus groups and surveys that will allow for grade level and school level data to be used for research purposes.

I look forward to working with Ms. Averitt to support her professional growth as we embark on this transformation that will positively affect student performance measures in our school.

Regards,

## APPENDIX C: ACTION PLAN

### Action Plan Problem Solving Template for Strong Literacy Foundation/Excelling Schools

School: Awesome Elementary Grade Level: Third Grade

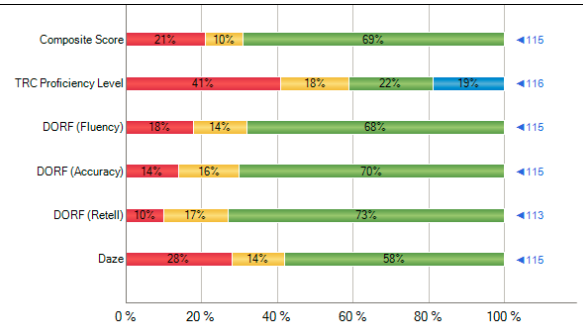
**What should our students know and be able to do?**

| Measure | BOY | MOY | EOY |
|---|---|---|---|
| DORF Fluency | 70 | 86 | 100 |
| DORF Accuracy | 95% | 96% | 97% |
| DORF Retell | 20 | 26 | 30 |
| DAZE | 8 | 11 | 19 |
| TRC | M | O | P |
| | **Benchmark 1** | **Benchmark 2** | **Benchmark 3** |
| ELA Benchmark Assessment (70% or above) | 70% | 70% | 70% |

| BOG | Level 1 | Level 2 | Level 3 | Level 4 | Level 5 |
|---|---|---|---|---|---|
| 115 students 22/115 (19%) | 54 (46.9%) | 29 (25%) | 11 (9.5%) | 19 (16.5%) | 2 (less than 1%) |

| Benchmark Assessments | Benchmark 1 | Benchmark 2 | Benchmark 3 |
|---|---|---|---|
| Percent of students with 70% correct or higher. | 68% (District 65%) | | |

**Identify the Problem:**

| BOY | MOY | EOY |
|---|---|---|
|  | (**Insert 3D Measure Breakdown graph here**. To find this graph in Amplify, click on "Reporting" tab and then click on "*mCLASS*: Reading 3D DIBELS Next" tab, choose "3D Measures Breakdown. Use a tool such as "snip-it" and cut and paste the graph in this space) | (**Insert 3D Measure Breakdown graph here**. To find this graph in Amplify, click on "Reporting" tab and then click on "*mCLASS*: Reading 3D DIBELS Next" tab, choose "3D Measures Breakdown. Use a tool such as "snip-it" and cut and paste the |

| | | |
|---|---|---|
| | | graph in this space) |

**Identify the Precise Problem Statement:**

| |
|---|
| On the BOG, only about 27% of all 3rd graders scored in the proficient range. 68% were considered proficient on the first district reading benchmark assessment and 68% met the state's expectation for reading fluency on the *MCLASS* DORF assessment. We are going to target the fluency as our underlying problem. |

**Develop Hypotheses (Why is the Problem occurring?)**

| **Instruction:** | **Curriculum:** | **Environment:** |
|---|---|---|
| Not enough independent reading time<br>Summer slide<br>**Not enough modeling of fluency**<br>Not enough 1:1 conferencing<br>Not enough phonics instruction<br>Not enough sight word instruction<br>Didn't teach students how to use punctuation<br>Not teaching phonics curriculum | Not enough books<br>No phonics curriculum materials<br>Not enough books on students' levels | Independent reading not monitored<br>Classroom management |
| **RIOT: Review, Interview, Observe, Test your hypotheses:**<br>● **Current grade level reviews and interviews previous grade level teachers to confirm hypotheses in the above categories. (Only at the beginning of the year )**<br>● **Highlight the hypotheses for areas of primary focus.**<br>● **Continue to next section to brainstorm solutions.** | | |
| **Instructional Solution Ideas:** | **Curriculum Solution Ideas:** | **Environment Solution Ideas:** |
| More choral reading<br>Reader's Theater<br>shared reading<br>conferring on student readings<br>Repeated reads | poetry<br>grade level books<br>Reading A-Z books<br>Reader's Theater | More small group instruction |

**Discuss and Select Solutions:**

| |
|---|
| We will use poetry to conduct shared reading aimed at fluency instruction for all students and repeat choral reading in small groups. |

**Develop and Implement Action Plan:** (Use solutions from section above to complete Action Plan below.)

| Who? | What? | Where? | How Often? |
|---|---|---|---|
| Classroom teachers | will use shared reading of poetry | Whole group<br><br>Small group | two times a week for 10 minutes<br><br>two times a week for 5 minutes |

**How will we know students are learning?**

| | |
|---|---|
| **Baseline Scores:**<br>18% were far below expectations, 14% were below expectations and 68% met the expectation. (BOY expectation-70 wpm; MOY expectation will be 86 wpm) | **Short Term Goal:** By Nov. 4th, 80% of students will read with 78 words per minute.<br>**Long Term Goal:** By the MOY assessment, 80% of students will read with 86 words per minute. |

**Measurement Strategies**

| | | |
|---|---|---|
| **Who: Classroom Teachers** | **With What: Progress Monitoring and Benchmark Assessments** | **How Often:** Students in red: every 10 days, Students in yellow: every 20 days; Students in green: once before Nov. 4. |

**Participants: Classroom Teachers**
**Review Meeting Date: November 4, 2015**
**<u>Review Meeting # 1</u>** November 4, 2015

**Results: 84/ 112 (75%)**
Teacher 1- 10/21, Teacher 2- 15/18, Teacher 3- 17/18 , Teacher 4- 17/18, Teacher 5- 10/18, Teacher 6-15/19

**Evaluate Revise Plan**

| **If less than 80% are proficient…** | **If 80% or more are proficient…** |
|---|---|
| **How will we respond if students don't learn? Refer to RIOT Process above and consider a different solution if needed. Revise your hypotheses considering current information.** | **How will we respond when students already learned? Refer to RIOT Process above and choose a different area of concern on which to focus.** |

**Next Steps:** Results are close to the goal. Continue with the intervention and recheck at the December meeting.

**Participants:** Teacher 1, Teacher 2, Teacher 3, Teacher 4, Teacher 5, Teacher 6, Administrator 1, MTSS Coordinator

**Next Meeting Date:** December 9, 2015

**Review Meeting # 2 December 9, 2016**

| |
|---|
| **Results:**<br>**Teacher 1- 13/21, Teacher 4- 19/20, Teacher 5- 13/18, Teacher 3- 19/19, Teacher 2- 15/18, Teacher 6- 16/19**<br>**Grade 95/115 (82%)** |

**Evaluate Revise Plan**

| **If less than 80% are proficient…** | **If 80% or more are proficient…** |
|---|---|
| **How will we respond if students don't learn?**<br>**Refer to RIOT Process above and consider a different solution if needed. Revise your hypotheses considering current information.** | **How will we respond when students already learned?**<br>**Refer to RIOT Process above and choose a different area of concern on which to focus.** |

| |
|---|
| **Next Steps:** The goal was met. Keep the goal and raise the number to 86 wpm. |

**Participants: Teacher 1, Teacher 2, Teacher 3, Teacher 4, Teacher 5, Teacher 6, Administrator 1**
**Next Meeting Date: February, 2016 (after MOY)**

## APPENDIX D: TEACHER SURVEY ITEMS

Teacher Survey Items-The Value of Collaboration

All items used the following Likert scale:

Strongly Disagree, Disagree, Neither agree nor disagree, Agree, Strongly Agree

1. Teachers feel comfortable discussing each other's data
2. The grade level team uses data to make decisions about core instruction
3. I depend on my team mates to share instructional ideas
4. I prefer to make my instructional decisions about my class by myself.
5. I believe that my team mates have innovative ideas
6. My teammates listen to my ideas
7. I feel like a valued member of a team
8. Spending time discussing data and instruction with my team mates is time well spent.
9. I utilize the ideas of my teammates when designing lesson plans.
10. I believe that working in PLCs has enhanced my students' achievement.

## APPENDIX E: SURVEY RESULTS

| Item | School Type | Strongly Agree | Agree | Neither Agree Nor Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 1. Teachers feel comfortable discussing each other's data. | Target | 26% | 54% | 11% | 8% | 2% |
| | Non-Target | 39% | 48% | 6% | 7% | 0% |
| 2.The grade level team uses data to make decisions about core instruction. | Target | 49% | 42% | 5% | 3% | 2% |
| | Non-Target | 58% | 35% | 4% | 2% | 2% |
| 3.I depend on my teammates to share instructional ideas. | Target | 32% | 39% | 17% | 8% | 5% |
| | Non-Target | 46% | 40% | 10% | 3% | 1% |
| 4. I prefer to make my instructional decisions about my class by myself. | Target | 6% | 12% | 35% | 34% | 12% |
| | Non-Target | 8% | 14% | 37% | 34% | 7% |
| 5. I believe that my teammates have innovative ideas. | Target | 39% | 49% | 6% | 2% | 5% |
| | Non-Target | 50% | 42% | 6% | 2% | 1% |
| 6. My teammates listen to my ideas. | Target | 43% | 34% | 12% | 9% | 2% |
| | Non-Target | 44% | 47% | 9% | 0% | 1% |

| Item | School Type | Strongly Agree | Agree | Neither Agree Nor Disagree | Disagree | Strongly Disagree |
|---|---|---|---|---|---|---|
| 7. I feel like a valued member of a team. | Target | 30% | 43% | 15% | 12% | 2% |
| | Non-Target | 42% | 43% | 12% | 2% | 2% |
| 8. Spending time discussing data and instruction with my teammates is time well spent. | Target | 30% | 43% | 15% | 12% | 2% |
| | Non-Target | 42% | 43% | 12% | 2% | 2% |
| 9. I utilize the ideas of my teammates when designing lesson plans. | Target | 26% | 60% | 14% | 0% | 0% |
| | Non-Target | 48% | 46% | 4% | 1% | 1% |
| 10. I believe that working in PLCs has enhanced my students' achievement. | Target | 17% | 42% | 32% | 6% | 3% |
| | Non-Target | 30% | 45% | 21% | 4% | 0% |

## APPENDIX F: WEEKLY SCHEDULE FOR DATA MEETINGS

| Week | Before the Meeting | During the Meeting |
|---|---|---|
| **Week One:** | • Develop common assessments and standardized method of scoring<br>• Bring your grade(s) and/or number of students scoring proficient on common assessment<br>• Teachers will progress monitor in TRC: red every 10 days/ yellow every 20 days | 1. Determine percentage of students scoring proficient 80% of the time<br>2. Compare this data to other data points, like *mCLASS*, benchmark assessments, progress report/report card grades, etc.<br>3. Discuss students performance in TRC progress monitoring including the written comprehension. |
| **Week Two:** | • Teachers will progress monitor students in yellow every 20 days<br>• Teacher will input student's PM score in ROI spreadsheet<br>• Review Tier 1 action plan | 1. Discuss overall progress of students. Note specific observations to make hypotheses.<br>2. Compare individual student's rate of progress.<br>3. Determine if Tier 1 strategy is working for all students or if changes need to be made. |
| **Week Three:** | • Read chapters (if in Book Club)<br>• Bring reading/writing conferring observations or use TRC running records | 1. Be an active participant<br>2. Share observations and hypotheses (Basic Protocol for Observing Student Work)<br>3. Determine strategies |
| **Week Four:** | • Title 1 will progress monitor students in red<br>• Title 1 will input PM scores in ROI spreadsheet<br>• Title 1 will begin Tier 2 paperwork | 1. Discuss overall progress of students in intervention. Compare homeroom and Title observations to make hypotheses.<br>2. Compare individual student's rate of progress.<br>3. Determine if Tier 3 strategies need to be implemented with specific students. |